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MILLENNIAL STUDENTS' AND FACULTY'S PERCEPTIONS OF A NEW GENERATION OF LEARNING CLASSROOMS

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MILLENNIAL STUDENTS' AND FACULTY'S PERCEPTIONS OF A NEW GENERATION OF LEARNING CLASSROOMS

by

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Dedication

To God, who placed this dream into my heart.

In loving memory of my grandparents: Guadalupe and Angelita García; Cristobal and Juanita Pequeño. I'm indebted to your many sacrifices that eventually paved the way to my future.

To my family (Antonio, Irene, and Tony García; Liza, Matt, Bren, Jad, and Bly Oestrike) whose continuous support and spiritual faith strengthened me to seek the end.

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MILLENNIAL STUDENTS' AND FACULTY'S PERCEPTIONS OF A NEW GENERATION OF LEARNING CLASSROOMS

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Today's higher education institutions are experiencing a different type of student population from previous years. They are known as gadget fanatics, social networkers, Internet enthusiasts, optimists, multitaskers, and inductive learners. Their viewpoints and aptitudes about technology and the Internet differ from others who rarely use it (Oblinger, 2003; Frand 2000). This population will present many challenges to American postsecondary institutions. Facilities, faculty, and curriculum will not be prepared to address their habits and expectations. They are called the Millennials. In an effort to start addressing the educational needs of the Millennial student population, postsecondary institutions must transition from the "old generation of learning" to the "new generation of learning" (Milliron, 2006). The purpose of the study is to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms.

There were five research questions for this study: (1) What are the perceptions of a new generation of learning classrooms by Millennial students? (2) How do Millennial

students relate to a new generation of learning classrooms? (3) What are the perceptions of a new generation of learning classrooms by faculty? (4) How do faculty relate to a new generation of learning classrooms? and (5) How Millennial students' and faculty's perceptions on the new generational of learning classrooms compare?

Since this was a qualitative study, the Interactive Qualitative Analysis (Northcutt & McCoy, 2004) was the research design utilized to collect and analyze data that answered the research questions. A purposive sample for this study included a total of 47 participants: 26 Millennial students and 21 faculty members. One component of the research design involved focus groups for the Millennial students and faculty. Both groups identified the following themes, which were used to create an interview protocol: technology, appearance, teaching style, learning environment, writing/work space, classroom mood, climate, emotions, group assignments, and social networking. Analysis of the interview text included axial and theoretical coding. This contributed to the development of a mind map for the Millennial students and faculty. Comparisons of these two composite mindmaps reveal their perceptions of the new generation of learning classrooms.

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Chapter I: INTRODUCTION TO THE STUDY

INTRODUCTION

Today's higher education institutions are enrolling and serving a different type of student population from previous years (Oblinger, 2003; Frand 2000). These students have been introduced to technology at a very early age, and they integrate it to their daily routine (Jones, 2002). They carry multiple electronic devices, which they consider to be as ordinary as owning a telephone and television at home (Jones, 2002; Oblinger, 2003). These students also utilize various communication tools to ensure they are connected to their friends, family, and the media world (Oblinger, 2003). They download and listen to music, perform file sharing, chat online, text message, study online, and send electronic mails (Jones, 2002). Their viewpoints and aptitudes about technology and the Internet differ from other people who rarely use it (Oblinger, 2003). This student population is known by several names: Millennials, Internet Gens, Generation Y, and Baby Boomers II (Newton, 2000; Zemke, Raines & Filipczak, 2000). This generation, which was born between 1982 and 2002, is the youngest population enrolled on college campuses. For this study, they were identified as the Millennials.

Frand (2000) emphasized that "over the next few years the Millennial students will become the majority, spreading like a tidal wave across higher education" (p. 16). They will feel disengaged in traditional classrooms since postsecondary institutions have not fully integrated the new ways students access information and communicate online in their classrooms (Levin & Arafeh, 2002). This generation will feel limited in the traditional learning environment that is time-bound, place-bound, efficiency-bound, and

role-bound (O'Banion, 1997). O'Banion (1997) observed that the new generation of students will "call for fundamental change in the current higher educational model" as they are "accustomed to not only eye-catching visuals, but also interactive toys, games, and instructional materials" (O'Banion, 1997, p. 37).

EMERGING CONDITIONS IN COMMUNITY COLLEGE INSTRUCTION

Prensky (2001) expressed that "today's students are no longer the people our educational system was designed to teach" (p. 1). Most classrooms are designed to appear like the classrooms designed a hundred years ago (Valenti, 2002). O'Banion (1997) emphasized that the current education model has four limitations: time-bound, place-bound, efficiency-bound, and role-bound. These are barriers that create a disconnection between the instructional environment and emerging technology literate Millennial students.

Time-Bound. O'Banion (1997) observed that the learning enterprise has been "built on a foundation of sand" and has relied "on time as the metric for school organization and curriculum (p. 10). The National Education Commission on Time and Learning agreed. In 1992, they concluded that "learning in America is a prisoner of time" (Prisoners of Time section, para. 1). The commission believed that the current education model only encourages learning to occur during the school's instructional schedule and governs "how material is presented to students," and "how students comprehend and master the subject" (Prisoners of Time section, para. 6). O'Banion (1997) noted that students do not learn by the same method, same schedule, and same rhythm.

Place-Bound. O'Banion (1997) emphasized that "if the student is to be freed for more powerful learning experiences and if the teacher is to be freed to facilitate that learning in a more powerful way, the walls must crumble, the boundaries made limitless" (p. 11). Schools have always been identified by a place (their relationship to the location of the campus). The geographic location of a school encourages a place-bound educational system that prevents students and faculty from utilizing the "open architecture created by new applications of technology and by new knowledge about how human beings learn" (p. 12).

Efficiency-Bound. O'Banion (1997) proposed that the educational system is an institution of bureaucracy that does not give the proper support for learning to occur. Leonard (1992) supported this line of reasoning. He stated that the bureaucracy is an "attempt to adapt the tutor-learner system to mass education," which he considered "a crude way of handling a large number of learners with a much smaller number of teachers" (para. 12). As a result, "the focus on the learner and learning…fades to the background as leaders [college administrators] struggle to become more efficient" to educate a large student population (p. 13).

Role-Bound. O'Banion (1997) observed that "teachers remain bound in a role that requires them to be knowledge experts when knowledge is expanding too rapidly for anyone to be an expert" (p. 14). In this circumstance, instructors are influenced by the lecture method as the primary tool for teaching since it is the most convenient technique to deal with students. Thus, the public image of higher education in the classroom is faculty lecturing while students listen and take notes. Long and Ehrmann (2005) stated that students who learn only through this traditional teaching style find themselves in an

ineffective learning environment since they are not encouraged to participate in activities such as class discussions.

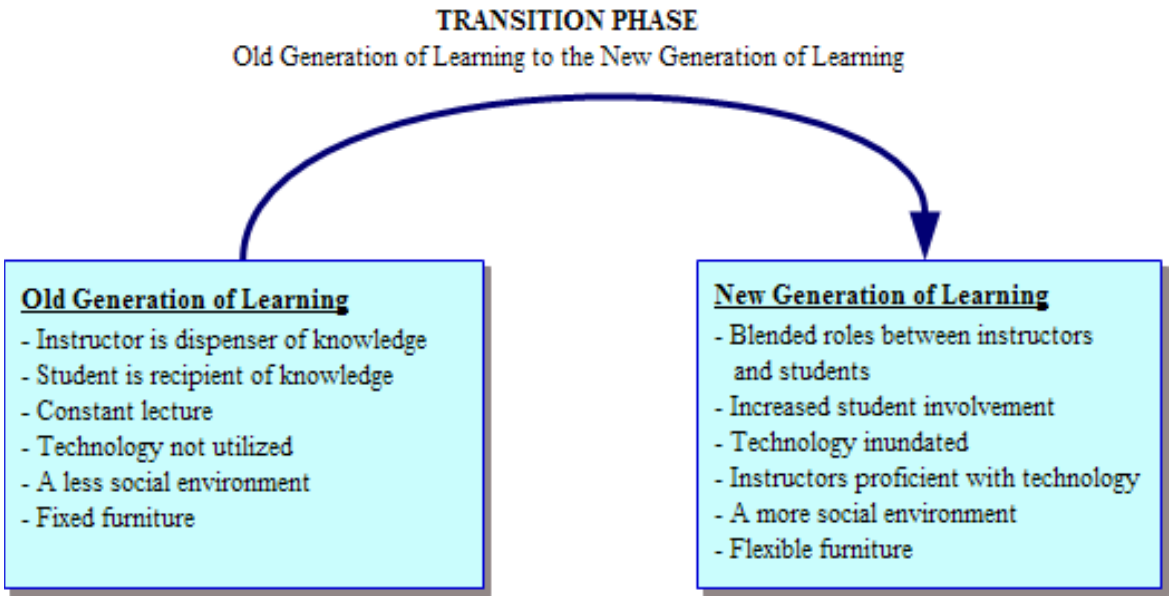
O'Banion (1997) expressed that these four barriers do not place the student first in the educational model. To overcome this obstacle, Stueck and Tanner (1996) highlighted that higher education institutions must design facilities and curriculum that are boundless in time, place, efficiency, and role.

STATEMENT OF THE PROBLEM

Prensky (2001) expressed that educational institutions continue to focus on the old generation of learning that is time-bound, place-bound, efficiency-bound, and role-bound. They assume that today's learners are the same as they have always been, and that the same methods that worked for them when they were students will work for their current students. However, the Millennial generation has different characteristics and learning expectations in comparison to previous generations (Strauss & Howe, 2000; Oblinger, 2003). This will be discussed in greater detail in Chapter 2. Oblinger (2006a) expressed that the Millennials are forced to work against their social nature, which involves "active, participatory, experiential learning" (Oblinger, 2006a, p. 1.1). Since the Millennials' way of thinking, communicating, and learning has been shaped by technology (O'Bannon, 2001; Levin & Arafeh, 2002), their enrollment in higher education will create a challenge for educators and administrators "to identify the changes that will be required to cater to a new technologically savvy generation of students" (Dwyer & Pospisil, 2004, p.194). Furthermore, postsecondary institutions will

encounter challenges during the transition phase from transforming an old generation of learning into a new generation of learning as shown in Illustration 1.01.

Illustration 1.01: Transition from the Old Generation of Learning to the New Generation of Learning

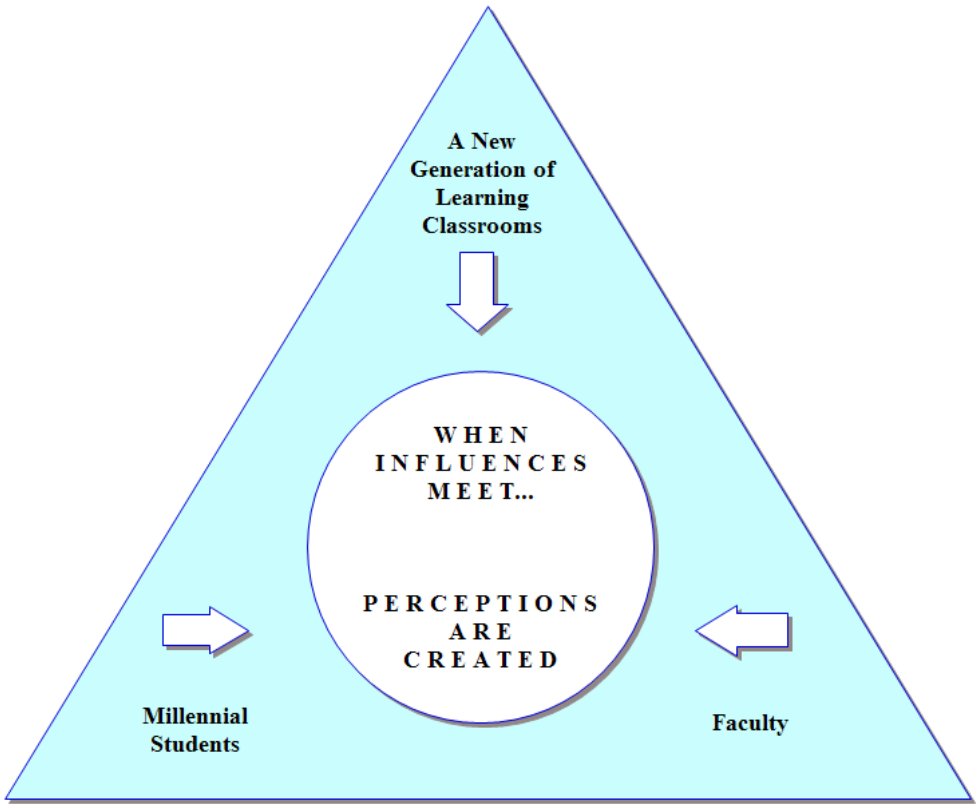


Source: Acevedo (2007b)

PURPOSE OF THE STUDY

The purpose of the study was to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms. Illustration 1.02 shows this purpose.

Illustration 1.02: Image of Qualitative Research Study



Source: Acevedo (2007a)

A second purpose was to extend current theory and empirical knowledge about the interaction of Millennial students and instructors in a new generation of learning. A third purpose was to generate new hypotheses and identify additional research which is necessary for a better understanding about the groups' perceptions of the new generation of learning classrooms.

RESEARCH QUESTIONS

The following were the research questions for this qualitative study:

1. What are the perceptions of a new generation of learning classrooms by Millennial students?
2. How do Millennial students relate to a new generation of learning classrooms?
3. What are the perceptions of a new generation of learning classrooms by faculty?
4. How do faculty relate to a new generation of learning classrooms?
5. How do Millennial students' and faculty's perceptions on the new generation of learning classrooms compare?

DEFINITION OF TERMS

The following definitions are terms used in this study:

1. **Generation** - "A society-wide peer group, born over a period roughly the same length as the passage from youth to adulthood who collectively possess a common persona" (Strauss & Howe, 2000).
2. **A New Generation of Learning** – The combination of innovative classroom spaces with informal spaces which encourage student engagement (Oblinger, 2006b). "This arrangement introduces flexible furniture arrangements, decenters the room from teacher to student activity, and stresses collaboration" (Oblinger, 2006a, p. 2.7).
3. **Millennial Generation** - Individuals who were born from 1982 to 2002 (Strauss & Howe, 2000).
4. **Technology** - "The process by which human beings fashion tools and machines to change, manipulate, and control their environment" (Britannica Student Encyclopedia, 2005).

SIGNIFICANCE OF THE STUDY

The National Center for Education Statistics (2004b) reports higher education institutions will see their student population change as more traditional age students enroll. These students are individuals who enroll in college upon graduating from high school. In 1990, 32.1% of tenth grade students across the nation expected to earn a bachelor's degree after graduating high school. This percentage rose to 39.7% for tenth graders in 2002, and is expected to rise to 53.7% in 10 years (National Center for Education Statistics, 2004). What does the rise in student enrollment mean for postsecondary institutions? It implies that as the younger generation continues to enroll in higher education institutions, they will become one of the influences that will challenge the educational culture. Their characteristics and advanced skills in technology will create a challenge between students and the educational delivery model (Frand, 2000; Jonas-Dwyer & Pospisil, 2004). Jonas-Dwyer & Pospisil (2004) believe Millennial students will expect faculty to modify their teaching style to include technology, less lecture based instruction, and more group work assignments. However, Jones (2002) stated that faculty may encounter a challenge to adapt to the Millennial students' needs. The reason for this is that the classrooms may not be designed as learning areas that encourages the mix of individual, team, small-group, and large group activity.

Craig (2004) stated that postsecondary institutions adapt to changes regardless of their challenges. If colleges are to succeed, then it is critical that they respond to the needs of their students and rethink their educational service delivery systems for a new generation of students (Spaid & Parsons, 1999; Van Wagoner, 2004; Roueche, Milliron, & Roueche, 2003; Frand, 2000).

LIMITATIONS

The following were limitations of this qualitative study:

- The community college chosen for this case study was not randomly selected, and there was no attempt to compare its students' characteristics with students at other similar institutions.
- The continuous development of new technologies will make some of the findings temporary.
- The theoretical validity of this study depended on the ability of the investigator to explain the phenomena that was studied and described.

ASSUMPTIONS

The following assumptions were made in this study:

- Older generations (Generation X and Baby Boomers) may have different perceptions on the new generation of learning in comparison to the Millennial generation.
- Not all Millennial students share the same characteristics.
- Not all Millennial students posses the same learning styles or capacities.
- Proficiency in the use of technology is not the same across all populations (Oblinger & Oblinger, 2005).
- Some individuals from older generations who are dependent on technology may have characteristics similar to the Millennial generation (Oblinger & Oblinger, 2005).

SUMMARY

The Millennial population is "a new generational wave breaking across campuses in America" (Howe & Strauss, 2003, p. 3). They will soon become the majority of the student population and their characteristics differ from older generations. Since the Millennials were born in the time period as the Information Age, they are more likely to be disengaged from a traditional learning environment that is time-bound, place-bound, efficiency-bound, and role-bound.

Frand (2000) compared the change required of higher education to address the needs of the students to businesses adapting to their customers. As computers entered the business world, corporations invested in upgrading their infrastructure from bookkeeping clerks to computerized accounting systems. "The value added came from changing the nature of the relationship between the company and its customers" (p. 22). Howe and Strauss (2003) explained that these are the four options that higher education institutions will choose when confronted with a new generation of students.

> You can ignore this breaking Millennial wave, by treating today's collegians as you did the last generation. You can resist it, by pursuing decades-old agendas. You can ride it, by adapting as fast as you can to new needs as they arise. Or you can lead this new youth wave, by preparing for Millennials before they arrive in full force. (p. 5)

The focus of this study is to examine when a postsecondary institution "rides" the new wave of learning and "leads" the initiative that addresses the educational needs of a new student population.

ORGANIZATION OF THE STUDY

The remainder of the dissertation was organized as follows: Chapter II Review of Literature and Theoretical Framework is an overview of the new generation enrolling in postsecondary institutions and the characteristics that separate them from older generations. This chapter also discusses the challenges higher education institutions encounter with a new generation of learning. Additionally, this section discusses a model (Self-Regulated) and a theory (Situated Learning) that support the learning preferences of the Millennial generation. Chapter III Methodology outlines the Interactive Qualitative Analysis (IQA) design. This qualitative methodology was selected to examine the Millennial students' and faculty's perceptions of a new generation of learning classrooms. This includes a discussion of the logistics of focus groups, interviews, and the coding process. Chapter IV Results presents the data results from participants involved in focus groups and interviews. Finally, Chapter V Interpretations concludes with an analysis of the results presented in Chapter IV, and discusses the implications of the new generation of learning as the new learning environment.

Chapter II: REVIEW OF LITERATURE AND THEORETICAL FRAMEWORK

INTRODUCTION

This chapter discusses the new generation of students that have begun to enroll in postsecondary institutions and the characteristics that distinguish them from older generations. The members of this new generation are: gadget fanatics, social networkers, Internet enthusiasts, optimists, multitaskers, and inductive learners. The investigator will also address the challenges this student population will encounter with higher education institutions, and present the importance of transforming the classroom environment from the old to a new generation of learning. This chapter also highlights Self-Regulated Learning and Situated Learning, which guided the study to this qualitative research.

A NEW GENERATION OF STUDENTS

Each generation has been affected by technology, and "every generation of teenagers embraces the freedoms and possibilities wrought by technology in ways that shock the elders" (Cole, Steptoe, & Dale, 2006). For Baby Boomers (born between 1943-1960), it was the invention of broadcast television, vacuum tubes, and 8mm film (Howe & Strauss, 2000; Strauss & Howe, 1991). For Generation X (born between 1961-1981), it was the invention of cable television, cassettes, compact disks, video cassette recorders, and calculators (Howe & Strauss, 2000). For the Millennials (born between 1982-2002), it is the invention of toys and tools of the digital age: CD-ROM, personal computers, 3-D video games, and Digital Cellular Phones (Howe & Strauss, 2000). The

characteristics and learning expectations of the new generation of students will affect the classroom environment (Frand, 2000; Jonas-Dwyer & Pospisil, 2004). A table comparing Baby Boomers, Generation X, and Millennials is included in Appendix A.

Who are the Millennials?

The Millennials have been identified as "native speakers of the digital language" (Prensky, 2001, p. 1), "the home alone generation," and "the most informed generation" as they have "spent many hours in the hands of television" and the Internet (Newton, 2000, p. 9). They are gadget fanatics, social networkers, Internet enthusiasts, optimists, multitaskers, and inductive learners.

Gadget Fanatics

A critical characteristic that differentiates the Millennials from older generations is their dependency on technology gadgets. The Millennials carry multiple electronic devices which they consider to be as ordinary as owning a telephone and a television at home (Jones, 2002; Oblinger, 2003). These technology gadgets allow the Millennials to stay in virtually uninterrupted contact with the world around them. They utilize Instant Messaging (IM) through cell phones to text message buddies, iPods to download and listen to music or class lectures, and Personal Digital Assistants (PDA's) to organize their lives (Klopher & Yoon, 2005). They are reported to be more comfortable "working on a keyboard than writing in a spiral notebook, and happier reading from a computer screen than from paper in hand" (Frand, 2000, p.15). Technology gadgets allow the Millennials to be mobile and have constant connectivity with friends and family at any time and place.

Social Networkers

Another characteristic of the Millennial generation is their dependency on the Internet for social communication. In a research study conducted by Lenhart, Rainie, & Lewis (2001), 76% of teens expressed that they would miss the Internet if it was not available to them, 48% expressed that the Internet improved their relationship with friends, and 32% shared that the Internet helps them make new friends. The Internet promotes social interaction through Instant Messaging, Internet game playing, and Web diaries (blogging) (Oblinger & Oblinger, 2005). Online social networks such as Myspace, Hi5, Yahoo 360, and Facebook connect the Millennials with friends and communities. They share opinions, photos, and personal information with one another and with strangers (Oblinger, 2005).

Internet Enthusiasts

In addition to the previously discussed characteristics, the Millennials are Internet enthusiasts. For the Millennial generation, "the Internet is like oxygen; they can't imagine being able to live without it" (Oblinger & Oblinger, 2005, p. 2.9). The Millennials access the World Wide Web for their educational efforts such as studying specific topics, accessing library materials, and learning from online encyclopedias such as Wikipedia (Jones, 2002). Lenhart, Simon, and Graziano (2001) reported that 94% of younger Millennials (12- to 17-years old) use the Internet for school research; 71% use the Internet as the major source for academic projects; 41% use electronic mail and Instant Messaging to contact teachers or classmates about schoolwork; 58% use Web sites for particular classes; and 17% have created a Web page for a school project.

Optimists

An additional characteristic of the Millennials is their high level of optimism. Sax (2003) believes that the Millennials have "grown increasingly optimistic about their chances for success in college" (p. 17). It is projected that the Millennial student population in postsecondary institutions will increase by 95% in 2012; thus, the Millennials will represent 75% (13.3 million) of college students at that time. Currently, they represent 44% (6.9 million) of postsecondary students (Coomes & DeBard, 2004).

Additionally, the Millennials feel confident in their technological expertise. Newton (2000) expressed that "students today are on the cutting edge of technological proficiency, and in most cases they are beyond their parents, teachers, and potential bosses" (p. 11). Technology is more pervasive in this population since they have been introduced to it at a very early age (Jones, 2002). Their technological proficiency, which has been encouraged by the computers in their bedrooms and cell phones in their pockets, has developed their ability to multitask (Lancaster & Stillman, 2002).

Multitaskers

Another characteristic is that the Millennials are multitaskers. They live in a mobile world which facilitates their multitasking nature (Skiba & Barton, 2006). They are accustomed to "jumping from one computer-based activity to another," (Tapscott, 1998, p. 108). This generation has been identified to simultaneously email, Instant Message, surf the Web, and talk on their cell phone. A Millennial student shares his multitasking experience:

> With information and accessibility lying at my fingertips, I have grown accustomed to juggling multiple tasks at once, all at lightning speed. My IM buddy list would be minimized on the screen but noise alerts would be turned on

> to tell me when friends signed on or off the Internet. A collage of browser windows would remain open, one directed to CNN.com so that I could read the day's news between text chapters, another to my e-mail so that I would know exactly when the next piece of mail arrived, and then another to Google, in case the text raised any questions. Somewhere in the middle would be me and an open history textbook. (Windham, 2005, p. 46)

Just as this student took advantage of the delay moments between activities to accomplish other tasks, other Millennials also thrive on instant gratification (Oblinger & Oblinger, 2005). Jones (2002) expressed that the Millennials would still be multitaskers without the existence of the Internet. The researcher stated "One can easily imagine them talking on the telephone, watching television, reading a magazine, and having a friend in the room" (p. 18). Tapscott (1998) emphasized that it is their multitasking nature that leads the older generations to believe Millennial's have the "attention span of a gnat" (p. 108).

Inductive Learners

An additional characteristic for the Millennials is their preference to learn by making observations (inductive discovery), formulating hypotheses, and figuring out the rules. Oblinger and Oblinger (2005) emphasized that this younger generation learns better through discovery than through lecture. The Millennials favor this method since it invites interaction and engagement in the learning environment.

CHALLENGES TO HIGHER EDUCATION

The previous section addressed the traits of the new student population. Now, it is vital to connect how these characteristics may create challenges in the higher educational institutions.

Craig (2004) highlighted that higher education institutions "have served as change agents for society but they, themselves, have functioned with a great deal of autonomy and now find such autonomy challenged" (p. 79). O'Banion (1997) described the challenge as such:

> American society is in a key stage of transformation from the Industrial Age to the Information Age, and all social institutions are-or will be-affected by the change. Many institutions, especially those of business and industry, have been actively involved in responding to these changes for some time; others, such as educational institutions, have begun to respond only recently and in most cases with a reserved enthusiasm. It appears that considerable benefit will accrue to those educational institutions that can successfully navigate the change while those that do no may atrophy or be consigned to the "rubbish heap of history. (p. 225)

As this population continues to enroll in college, they will encounter obstacles with technology infrastructure, faculty, and educational delivery.

Technology Infrastructure Challenges

Milliron (2006) emphasized that current educational institutions have not incorporated the needed technology infrastructure into the classroom. He explained that colleges tend to separate facilities from technology, when in fact both are required to facilitate a new generation of learning. Stueck and Tanner (1996) described the design plans for current campus facilities:

> The major design decisions are being made by architects with a bias toward buildings and not educational experiences for students. A second level of decisions for the purchase of school facilities is made by elected board members who may or may not have knowledge about human development. A third level of decisions on the configuration of school campuses is made by central office personnel who are over worked and looking for the most expedient means of housing their ever expanding student population. (p. 3)

Campus facilities that are designed without the consideration of the students' needs create restricted learning environments. Milliron (2006) recommended that postsecondary institutions include the integration of technology into their facility design to encourage interactive learning in the classroom. As a result, instructors will be able to use a variety of media to facilitate learning.

Challenges to Faculty and Students

A second challenge is that the Millennial student population is reported to feel disconnected from Baby Boomer and Generation X faculty who are less proficient with technology and the Internet (Taylor, 2003). A Millennial student described the disconnection felt with a professor from a different generation.

> My professor - a relic of the Greatest Generation - preferred the newspaper over CNN.com, the weatherman over WeatherBug, and face-to-face visits over e-mail exchanges. He dusted off journals from the 1980s and flipped through their pages, and, if you asked him, he actually knew how to load one of those microfiche machines on the second floor of the university library. He represented, for me, a world I could scarcely remember - a world before driving directions on MapQuest, a book buying on Amazon.com, and making plans on Instant Messenger - a world when tasks were managed one by one instead of all at once on multiple Web browser windows. And, as my peers and I continue to flood the gates of the nation's colleges and universities, I am a puzzle to many of the faculty and administrators who will try to teach me. They will either try too hard to transform education into the virtual language I understand or too little to accommodate for the differences between us. (Windham, 2005, p. 44)

Oblinger (2003) expressed that faculty members have not fully integrated the new ways students can access and communicate information through technology into their teaching. Why has it become a challenge? Oblinger stated:

> Current higher education administrators, as well as many faculty and staff, represent a different generation from the majority of the student population. With an average faculty age of over fifty, many decision-makers in higher education

> graduated in the 1970s. The experiences of a 1970s generation of students are likely to be quite different from those of the current student body." (p. 38)

The different level of proficiency and dependency on technology between generations presents a challenge between older faculty/staff and younger students. Prensky (2001) described the older generations as digital immigrants who either do not speak the digital language of the Millennial generation or speak the language with an accent. He conveyed that the accent can be seen as "turning to the Internet for information second rather than first, reading the manual for a program rather than assuming that the program itself will teach us to use it, needing to print out a document written on the computer in order to edit it, and bringing people physically into your office to see an interesting web site rather than just sending them the URL" (p. 2). As a result, Prensky expressed that higher education has many "digital immigrant instructors, who speak an outdated language" and "struggle to teach a population that speaks an entirely new language" (p. 2). Oblinger and Oblinger (2005) highlighted that not all faculty and administrators from older generations are digital immigrants. In fact, they, too, may be heavy users of technology. If they are, then they will have similar characteristics to the Millennial generation.

Educational Delivery Challenges

Oblinger (2003) also explained how it has become a challenge for higher education institutions to reconsider their educational delivery methods since the Millennial students have been so influenced by technology. O'Banion (1997) argued:

> Colleges and universities will find a generation that will simply not put up with traditional lecture formats and professors who teach in the 'great person' traditions. Rather, the next generation of students will be demanding consumers who expect active engagement in the learning process. (p. 38)

Valenti (2002) stated that students have moved beyond the lecture concept. Instead, they will expect a "plug-and-play experience" and "learn through participation and experimentation" (Duderstadt, 1997, p. 80). Oblinger (2003) compared these types of learning to the Nintendo games the Millennials have been playing for most of their lives. These games provide a trial-and-error approach to solving problematic situations, and enable players to quickly learn lessons each time they attempt to finish the game. This offers stimulation which Prensky (2005) described as "thrilling," "exciting," and "challenging" battles which the Millennial students can "explore," "research," and "master" with their friends (p. 62). Prensky also suggested that this type of learning is not being offered in today's courses. He argued that the Millennials are served a "stale" and "bland" education (p. 62).

O'Bannon (2001) and Levin and Arafeh (2002) emphasized that since technology has shaped the Millennials' way of thinking, communicating, and learning, faculty may limit the use of technology in their classrooms in an effort to reduce the differences between themselves and their students. However, Oblinger (2003) addressed that some educators do use technology in the classroom. Nonetheless, students "indicate their teacher's use of technology is uninspiring and disappointing" (p. 39). She explained that "students report seeing better ways to use technology than do their teachers" (p. 39). Frand (2000) suggested that if educators continue to teach in the same manner, then little value will be added to the classroom curriculum. Taylor (2003) implied that "it might be easy for these students to assume that an instructor who is not aware of modern technological trends might be equally unaware of current issues in their own field" (p.

118). DeBard (2004) stated "the mixture of Boomer and Generation X faculty and staff makes for a very complex environmental equation" (p. 39).

TRANSFORMING THE CLASSROOM LEARNING ENVIRONMENT

To meet the expectations and habits of the Millennial students, Milliron (2006) believes that postsecondary institutions need to shift from the "old generation of learning" to the "new generation of learning" (Milliron, 2006). Brown (2005) identified and compared the two types of learning (teacher-centered and learner-centered), which is reflected in Table 2.01.

Table 2.01: Old Generation of Learning vs. New Generation of Learning

Old Generation of Learning *(Teacher-Centered)*	**New Generation of Learning** *(Learner-Centered)*
Memorization	Understanding
Recall	Discovery
One size fits all	Tailored; potion rich
Talent via weeding out	Talent cultivated and sought out
Repetition	Transfer and construction
Acquisition of facts	Facts and conceptual framework
Isolated facts	Organized conceptual schemas
Transmission	Construction
Teacher = master and commander	Teacher = mentor
Fixed roles	Mobile roles
Fixed classrooms	Mobile, convertible classrooms
Single location	Plurality of locations and space types
Summative assessment	Summative and formative assessment

Source: Brown, 2005

The next two subsections differentiate the old generation of learning from the new generation of learning.

The Old Generation of Learning

The "old generation of learning" has been recognized as bounded by time, place, efficiency, and role as discussed in Chapter One. This approach to learning is common in higher education (Tapscott, 1998). Historically, individuals (instructors and students) who participate in the classroom experience have fixed roles. For instance, the

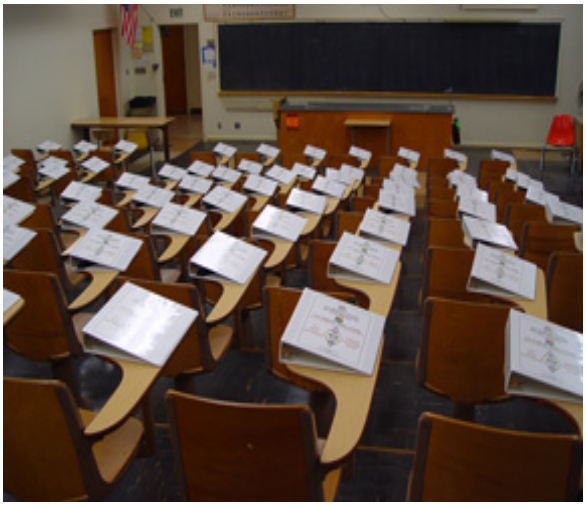
instructors play the role of the expert, master, and commander. They transmit or broadcast knowledge through a one size fits all approach known as lectures (Skiba & Barton, 2006; Tapscott, 1988). A teacher's specific interests and background strongly influences the course content. Thus, the instructor is the "giver of knowledge" and the stimulus to students (Knowlton, 2000, p. 7). In contrast, the students "take the information they are 'taught' into active working memory" as they "tune in" to the teacher's lecture (Tapscott, 1988, p. 129). Students learn by memorization, repetition, and recall (Oblinger & Oblinger 2005). This learning environment is considered place-bound. There is a single location where teaching is implemented. The classroom setting is also fixed to meet this type of environment. The instructor continuously teaches in front of the class as the students sit in rows to listen to the lecture. This "old generation of learning" has been described as an authoritarian, top-down, teacher-centered, and a lecture-based model of education (Oblinger & Oblinger 2005; Tapscott, 1988).

Illustration 2.01 and 2.02: shows two photos of the classrooms that encourage the old generation of learning. In this traditional classroom-learning environment, there is a lack of flexibility to rearrange the desks or promote collaboration among students. Students are locked into a certain position during classroom time. Even though the first photo shows the use of technology in the classroom, the wiring makes it a challenge for students to move tables and work with each other.

Illustration 2.01: Traditional Classroom Learning Environment (Image 1)

Source: Estrella Mountain Community College (2006b)

Illustration 2.02: Traditional Classroom Learning Environment (Image 2)



Source: Los Angeles Valley College (2006)

However this type of learning is not conducive to Millennial students. They prefer to navigate and investigate a topic for further understanding. The "talk, text, test" approach to teaching is not valued by the Millennials (Oblinger & Oblinger, 2005).

Prensky (2001) acknowledged that faculty members who focus on the old generation of learning assume that learners are the same as they have always been, and that the same methods that worked for them when they were students work for their students now.

The New Generation of Learning

Currently, there are higher education institutions which have begun to transform their classrooms to the "new generation of learning" (Milliron, 2006) to meet the habits and expectations of the Millennials. In this new type of environment, the instructors no longer have the role of an "intellectual authority," "umpire, judge, and dictator" (Knowlton, 2000, p. 7). They are now removed as the center of the classroom. Instead, they take the role of a facilitator, coach, counselor, and mentor while the student becomes an active participant in the classroom. Students are now encouraged to discover, construct, and understand knowledge rather than memorize and recall the information (Brown, 2005). This new generation of learning is not a one-size-fits all approach. Rather, learning is tailored to the habits and expectations of the student. Students learn by hands-on activity and group work. They are able to collaborate with their peers and engage in class discussions. This is beneficial for the Millennials whose social nature leads their learning preference to work in teams and help each other. The attraction of group work includes the opportunity to demonstrate their cooperativeness and to reduce the risk of individual failure (Howe and Strauss, 2000).

Brown (2005) expressed that the goal of the new generation of learning is "not to do away with the traditional classroom, but rather to reinvent and to integrate it with the other learning spaces" (p. 12. 18). This learning environment can be adapted to address many approaches to learning while allowing for creative space utilization. Furthermore,

Carmean and Haefner (2002) highlighted that technology has molded the new generation of students to seek learning environments that are social, active, contextual, engaging, and student-owned. They identified these characteristics as deeper learning principals, which they consider to be "an engaged learning that results in a meaningful understanding of material and content" (p 29). Carmean and Haefner (2002) pointed out that learning is effective when technology is combined with the following five learning principals shown in Table 2.02: (social, active, contextual, engaging, and student-owned).

Table 2.02: Deeper Learning Principals

Learning Is…	When…
Social	▪ It involves cognitive apprenticeship. ▪ It promotes reciprocity and cooperation among students. ▪ It offers prompt feedback. ▪ It encourages contact between students and faculty. ▪ It emphasizes rich, timely feedback.
Active	▪ It is engaged in solving real-world problems. ▪ It is intertwined in judgment and exploration. ▪ It is situated in action. ▪ It uses active learning techniques. ▪ Practice and reinforcement are emphasized. ▪ Involvement in real-world tasks is emphasized.
Contextual	▪ New knowledge builds on the learner's existing knowledge. ▪ New knowledge is integrated into the learner's world. ▪ Knowledge is applied by the learner. ▪ Knew knowledge is demonstrated to the learner. ▪ Students have a deep foundation of factual knowledge. ▪ There is awareness that students come to the classroom with preconceptions about how the world works. ▪ Students understand facts and ideas in the context of a conceptual framework. ▪ Learning is concrete rather than abstract.
Engaging	▪ It respects diverse talents and ways of learning. ▪ It communicates high expectations. ▪ It is done in high-challenge, low-threat environments. ▪ It emphasizes intrinsic motivators and natural curiosities.
Student-Owned	▪ Students organize knowledge in ways that facilitate retrieval and application. ▪ Students take control of their own learning; noting failures, planning ahead, apportioning time and memory to tasks. ▪ It emphasizes learner independence and choice. ▪ It allows time for reflection. ▪ It emphasizes higher-order thinking (synthesis and reflection).

Source: Carmean and Haefner (2002)

Carmean and Haefner (2002) explained that these five deeper learning principals can make the difference between a course that establishes an effective learning environment and one that does not consider the characteristics and expectations of the Millennial generation. Table 2.02 shows that:

- **Deeper Learning is Social**. An online world is social, anytime and all the time. Virtual chat is used by a new generation of learners. Discussion boards encourage peer-to-peer responses asynchronously, and involve many students as opposed to the instructor-led discussions often found in the classroom environment. (p. 30)
- **Deeper Learning is Active.** An interactive learning environment allows for quick and meaningful feedback. Answers can be evaluated, responses can be delivered, and students can be directed to outside sources for better understanding. Students can receive immediate feedback to misconceptions and errors in their thinking. (p. 30)
- **Deeper Learning is Contextual.** A contextual learning environment builds on the learner's existing knowledge and integrates the knowledge into their world. Course material can be implemented by the use of sound, video clips, and the Internet which allows the learner to see content in a personified manner. (p. 30 – 31)
- **Deeper Learning is Engaging.** An engaging learning environment considers the diverse learning styles of students who are attracted to visual stimulus or verbal interaction. Providing a greater volume of diverse course materials such as lecture notes, multimedia-enhanced curriculum, discussion boards, live chat rooms, links to outside Web sites, and formative assessments are strategies to increasing engagement. (p. 32-33)
- **Deeper Learning is Student-Owned.** A student-owned learning environment occurs when students choose to learn. It is vital for the instructor to nurture and encourage students to create this type of environment. With a greater number of students working more hours, raising children, and balancing responsibilities far removed from campus life, anytime-anywhere learning allows them to come to the learning

table whenever and wherever they choose instead of only when the class schedule dictates. (p. 33)

LEARNING SPACES: THE NEW GENERATION OF LEARNING

As it has been discussed in the literature review, the foundation of educational institutions has been the old generation of learning. The learning spaces on college campuses have been the traditional lecture theatre setting which favors an old generation of learning (Jamieson, Dane, & Lippman, 2005). Usually, teachers lecture in front of the classroom while the students sit quietly and take notes. Frequently, students need learning spaces that facilitate group interaction and provide network connections (Brown & Lippincott, 2003). Those spaces must match the habits and study arrangement of the Millennial generation. Herman Miller (2004) recommended "a mixture of relaxed discussion and study areas, workspaces that expand or contract depending on need, and private or group spaces with computers and other equipment," (p. 2). This type of space has been identified as learning spaces. Brown (2005) expressed that learning spaces "encompass the full range of places in which learning occurs, from real to virtual, from classroom to chat room" (p. 12.4). These learning environments make it possible to implement new learning activities and increase engagement and collaboration (Brown & Lippincott, 2003).

Brown (2005) illustrated how the traits of the Millennial generation and learning theory principals might be supported by learning space design and technology. This is shown in Table 2.03.

Table 2.03: Aligning Millennial Traits, Learning Theory Principals, Learning Space and Technology Application

Millennial Generation Traits	Learning Theory Principles	Learning Space Application	Technology Application
Group activity oriented	Collaborative, cooperative, supportive	Small-group work spaces	IM chat; virtual whiteboards; screen sharing
Goal and achievement oriented	Metacognition; formative assessment	Access to tutors, consultants, and faculty in the learning space	Online formative quizzes; e-portfolios
Multitaskers	Active	Table space for a variety of tools	Wireless
Experimental; trial-and-error learners	Multiple learning paths	Integrated lab facilities	Applications for analysis and research
Heavily reliant on network access	Multiple learning resources	IT highly integrated into all aspects of learning spaces	IT infrastructure that fully supports learning space functions
Pragmatic and inductive	Encouraging of discovery	Availability of labs, equipment, and access to primary resources	Availability of analysis and presentation applications
Ethnically diverse	Engagement of preconceptions	Accessible facilities	Accessible online resources
Visual	Environmental factors; importance of culture and group aspects of learners	Shared screens (either projector or LCD); availability of printing	Image databases; media editing programs
Interactive	Compelling and challenging material	Workgroup facilitation; access to experts	Variety of resources; no "one size fits all"

Source: Brown (2005)

Brown (2005) identified nine characteristics to describe the Millennial generation. Each trait is aligned with the learning style and the implementation of that learning style. For instance, the first Millennial generation trait shown is “group activity oriented.” The leaning theory principal that addresses this trait is “collaborative, cooperative, and supportive.” Since the Millennial students seek this type of activity in their learning

environment, the learning space application needed to facilitate this would be to work in small groups. This activity can be implemented through the following technology applications: IM chat, virtual whiteboards, and screen sharing.

A Description of a New Generation of Learning Classroom

In the past decade, postsecondary institutions have invested millions of dollars in transitioning from the old generation of learning to the new generation of learning that is facilitated through learning spaces. Brown (2005) expressed that "virtual space has taken its place alongside physical space" (p. 12.3). This has led to the addition of technology in the classroom such as cameras, DVD players, Internet access, and projectors, which provide a new functionality to the classroom. Brown (2005) highlighted that learning spaces makes it possible to "bring much more diverse materials to the classroom, to present them in a variety of ways, and to devise new classroom activities for students. As a result, the concept of the classroom has expanded to include this set of new functions" (p. 12.2). Brown (2005) provided the following scenario to describe how students and faculty can become engaged in learning spaces that are leveraged by Learning Technology:

> **Leaning Space Scenario**
>
> Sandra, a junior, is heading to her psychology class. It's relatively large class for her liberal arts college, with some 150 students. Sandra finds a seat among some friends and begins "moving in" to her space. This lecture hall is of relatively recent vintage; its seats and paired tables make it much easier to deploy and use her "tools," which include printouts of the day's reading, as well as a small laptop computer. The professor commences her lecture. In one of the older lecture halls, she might have been tied to the lectern so that she could click through her PowerPoint slides. Or she might have abandoned her slides in order to write on the blackboard while her students scribbled notes in their notebooks. But in this newly renovated lecture hall, she and her students have many more options. She has what the campus technology office calls a "magic wand," a radio-frequency

> controller that enables her to operate her computer-as well as many of the classroom's functions-wirelessly, from any point in the room. She can capture anything she writes on the blackboard and makes it available to her students on the course Web site. Freed from needing to take extensive notes, the students are able to participate more fully in the class discussion. At one point in the discussion, Sandra sketches a diagram on her laptop that she feels helps explain the concepts being discussed. She asks the professor if she could show it to the class. Within a few seconds, her computer's screen is projected on the room's main screen. The professor, using a virtual pencil, is able to make notes on the diagram. Halfway through the class period, the professor pauses the conversation. She goes to the podium computer and clicks on a few links, and soon a videoconferencing session is displayed. She has arranged to have a colleague of hers "drop in" on the class. The class has a conversation with the expert, who is at a large research institution more than 500 miles away. Students listen to the expert's comments and are able to pose questions using the cordless microphones. On the left-hand screen, the visiting professor shows images and charts that help explain the concepts under discussion. Finally, the professor is carrying a small recorder that captures her lecture, digitizes the audio, and uploads it to the course Web site for the students to review when they prepare for finals. (p. 12.9, 12.10, 12.11, 12.12)

This scenario described the different styles of learning that can take place in a learning space environment through the integration of technology. Brown (2005) emphasized that the classroom setting described in the scenario is aligned with the habits and expectations of the Millennial students, who enjoy social interaction, technology, and self-regulated and experiential learning.

Jamieson, Dane, and Lippman (2005) recommended that if facilities are to encourage the new generation of learning, the environment must be (p. 20):

- Adaptable – Enable various sized groups to form and work within a discrete area.
- Flexible – Provide spaces for individual, one-to one, small group, and large group activities and areas for laptop or other portable technologies.
- Multi-dimensional – Allow different types of activities to occur simultaneously.
- Accessible – Permit open access to students according to need.

- Secure – Provide online storage for incomplete and ongoing work.

They proposed that these five elements will help define a successful learning space. A community college that has begun to address the new generation of learning has started to incorporate these elements into the design of their classrooms:

> All aspects of a learning environment are addressed, with tables and chairs chosen for their flexibility, mobility, and ergonomic features. Ease of technology usage was provided along with adaptable lighting. The infrastructure to facilitate electrical, wireless, and technology elements was installed. Mobile teachings stations and preferences for wall writings areas through the rooms were incorporated. We wrapped the entire space in captivating colors, textures, and finishes. (Oblinger, 2006b)

Illustrations 2.03 – 2.06 show four examples of an environment that encourage a "new generation learning" which meet the recommendations previously described by Jamieson, Dane, and Lippman (2005).

Illustration 2.03: New Generation of Learning Classroom (Image 1)

Source: Lopez & Gee (2006)

Illustration 2.04: New Generation of Learning Classroom (Image 2)

Source: Lopez & Gee (2006)

Illustration 2.05: New Generation of Learning Classroom (Image 3)

Source: Community College Leadership Program – Block 61. (2005)

Illustration 2.06: New Generation of Learning Classroom (Image 4)

Source: Community College Leadership Program – Block 61. (2005)

Jamieson, Dane, and Lippman (2005) stated that learning spaces "allow students a degree of personal ownership and control, thereby generating a sense of identity with, and responsibility for, the maintenance and integrity of that space" (p. 19).

Supporting Learning Spaces

Some higher education institutions are rethinking their vision for learning and the spaces in which it occurs. Learning spaces have the potential to serve the new generation of learning by meeting the habits and expectations of the Millennial students. The new generation of learning also encourages instructors and students to use interactive tools to explore various learning approaches (Brown, 2005).

However, Brown and Lippincott (2003) emphasized that postsecondary institutions must consider the type of support needed to make learning spaces successful. These include faculty training, development of digital curriculum materials, help desk

support, hardware and software maintenance, network and wireless connectivity. Strauss (2003) proposed that faculty need to understand some basic elements of Learning Technology:

> They need to be able to use e-mail, a text processing program, a course management system, and basic presentation software. They also must be able to browse and search the Web. Anything beyond that, however, is so specialized that only faculty with a compelling interest in some facet of IT should be expected to master it. (para. 8).

Previous generations have considered Learning Technology as an optional tool; however, it has always been essential for the Millennials. This generation has grown up using computers and other network devices. IT offers mobility and 24/7 availability and encourages students to become social, team-oriented, multitaskers, and learn through a hands-on approach (Brown, 2005). Strauss (2002) recommended that postsecondary institutions engage in continuous improvement activities to use current technology tools in the classroom.

THEORETICAL FRAMEWORK

The purpose of the study was to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms. A model (Self-Regulated Learning Model) and a theory (Situated Learning)were chosen to address the learning style preferences of the Millennial generation as it aligned with their habits and expectations. The theoretical framework guided the research and determined the variables to be measured.

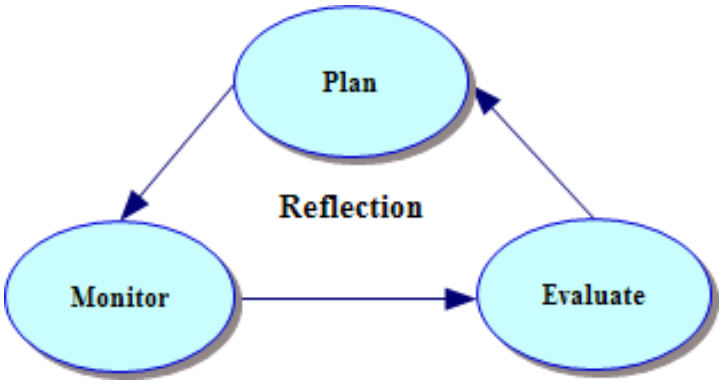
Self-Regulated Learning Model

Self-regulation is a critical aspect of student learning and academic performance in the classroom (Pintrich & De Groot, 1990). Purdie, Douglas, & Hattie, (1996) defined self-regulated learners as follows:

> Self-regulators are characterized as purposeful, strategic, and persistent in their learning. They possess the ability to evaluate their own progress in relation to the goals they have set and to adjust subsequent behavior in light of those self-evaluations. Self-regulated learners generate and direct their own learning experiences rather than act in response to external controls. In sum, they are self-initiators who exercise personal choice and control of the methods needed to attain the learning goals they have set for themselves. (p. 87)

Pintrich and De Groot (1990) emphasized that there are three critical self-regulating components for classroom performance: (1) planning one's learning, (2) monitoring progress while implementing the plan, and (3) evaluating the outcome of the plan upon completion. Each component involves students to reflect and make modifications when they plan, monitor, and evaluate. Illustration 2.07 shows the Self Regulated Learning Cycle.

Illustration 2.07: Self-Regulated Learning Cycle



Source: Pintrich and De Groot (1990)

Plan. The first stage in the Self-Regulated Learning Cycle is the planning phase. During this initial phase the students analyze the learning task, set learning goals, and plan their learning strategies.

Monitor. The second stage in the Self-Regulated Learning Cycle is the monitoring phase. Students implement their plan while monitoring themselves to ensure they are making progress toward their goal. During this phase, students consider the following questions:

- Am I using the strategy as planned?
- Am I slipping back into my old habits?
- Am I staying focused?
- Is the strategy working (am I meeting my learning goals)
- Do I need to take any corrective actions?

Evaluate. The third stage in the Self-Regulated Learning Cycle is the evaluation phase. Students determine the success of their strategy by asking themselves the following questions:

- What did I think and feel about this particular strategy (or set of strategies)?
- Did I use them properly?
- How well did the strategy work
- What learning did I achieve?
- Was the strategy a good match with the type of learning task?

Reflection. Reflection is not a fourth phase in the Self-Regulated Learning Cycle. Rather, it is a strategy that is evident throughout all phases. Students reflect to make modifications when they plan, monitor, and evaluate.

The theoretical base for self-regulation originated from social cognitive theory in which "personal, contextual, and behavioral factors interact…to allow…students to exercise control over their own learning" (Purdie, Douglas, & Hattie, 1996, p. 87). Albert Bandera's belief in self-regulation learning was that it gave individuals the freedom "to serve as casual contributors to their own life course by selecting, influencing and constructing their own circumstances" (Zimmerman & Schunk, 2003, p. 446). This concept encourages students to practice self-control and manage their academic tasks (Martin, 2004; Pintrich & De Groot, 1990). Thus, the role of instructors in developing self-regulated students is different from traditional classes where the faculty emphasizes subject content goals, monitors students progress, and moderates the pace of learning for the entire class. Instructors shift the responsibility for learning to students by:

> (a) asking them [students] to self-monitor, (b) assisting them to analyze their own data either individually of in small groups, and (c) helping them set goals and choose strategies in light of self-monitored outcomes. (Zimmerman, Bonner, & Kovach, 1996, p. 16).

In the Information Age, the explosion of knowledge has allowed the Millennial generation to seek information by the click of a mouse. Their preference for inductive discovery gives them a sense of personal control by motivating them to learn on their own. Zimmerman, Bonner, & Kovach (1996) highlighted that self-regulated learners are expected to grow in: (1) their understanding of subject matter content, (2) their learning efficiency, and (3) their perceived self-efficacy for accomplishing additional learning tasks (p. 135).

Situated Learning Theory

Anderson, Reder, and Simon (1996) defined situated learning as emphasizing "the idea that much of what is learned is specific to the situation in which it is learned" (p. 5). They identified four major characteristics of situated learning that guide the development of classroom activities: (1) "Learning is grounded in the actions of everyday situations; (2) Knowledge is acquired through situation and transferred only to similar situations; (3) Learning is the result of a social process encompassing ways of thinking, perceiving, problem solving, and interacting in addition to declarative and procedural knowledge; and (4) Learning is not separated from the world of action but exists in robust, complex, social environments made up of actors, actions, and situations" (p. 5).

Social interaction is a critical component of the Situated Learning Theory. Learners become engaged in a "community of practice" (Smith, 2006). Jean Lave and Etienne Wenger observed that communities of practice are everywhere, at school, work, or home. Members are brought together by joining in common activities and by what they have learned through their mutual engagement in these activities (Wenger, 1998). Smith (2006) stated:

> The fact that they [groups] are organizing around some particular area of knowledge and activity gives members a sense of joint enterprise and identity. For a community of practice to function it needs to generate and appropriate a shared repertoire of ideas, commitments and memories. It also needs to develop various resources such as tools, documents, routines, vocabulary and symbols that in some way carry the accumulated knowledge of the community. In other words, it involves practice: ways of doing and approaching things that are shared to some significant extent among members. (Communities of Practice section, para. 4)

Wegner (1998) emphasized that "members of a community are informally bound by what they do together–from engaging in…discussions to solving difficult problems–

and by what they have learned through their mutual engagement in these activities" (Defining Communities of Practice, para. 2). In contrast to the old generation of learning, situated learning is dependent on the relationships between people and is also impacted by the environment (Smith, 1999).

The Situated Learning Theory is appropriate to describe the experiences of the Millennial student population. This generation favors group work and cooperative projects rather than individual based activities (Howe, & Strauss, 2003). Their continuous involvement in a social environment encourages learning to be created by interaction with the peers.

Theoretical Framework Significance

The purpose of the study is to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms. The investigator visited the theoretical framework to determine if Self-Regulated Learning and Situated Learning are evident in the environment.

SUMMARY

Postsecondary institutions are beginning to be influenced by a "new breed of students on campus." (Newton, 2000, p. 9) These students will expect educators to incorporate the mindset of today's learners into the classroom (Frand, 2002). The Millennial generation, which has grown-up in the Information Age, will become "disengaged with traditional instruction," seek "multiple streams of information, prefer

inductive reasoning, want frequent and quick interactions with content, and have exceptional visual literacy skills" (Eck, 2006, p. 17).

DeBard (2004) asserts that it is vital to understand the characteristics, expectations, and motivations of the Millennial generation. Millennials are "coming to campus with special expectations and needs, having been raised under unique conditions" (Taylor, 2003, p. 119). Hence, their characteristics and expectations have begun to influence the way learning is experienced (Craig, 2004) by transitioning from the old generation of learning to the new generation of learning.

Consequently, research reveals that postsecondary institutions have encountered challenges from this change and in many instances have failed to respond. First, they have not incorporated the needed technology infrastructure into the classroom. Milliron (2006) noted that postsecondary institutions have not integrated technology into their facility design to encourage interactive learning in the classroom. Second, a disconnect exists between the Millennial students and faculty born in previous generations. Many faculty members may find the shift from the old generation of learning to the new generation of learning a challenge since they have been raised with the presence of a hierarchical structure in the classroom (Dede, 2005). Third, higher education leaders are challenged to reconsider their educational delivery methods to meet the habits and expectations of the Millennial student population. This generation has been identified as gadget fanatics, social networkers, Internet enthusiasts, optimists, multitaskers, and indicative learners. These characteristics do not mesh well with the learning approaches from the old learning generation (Brown, 2005).

There are postsecondary institutions that have begun the transition to the new generation of learning by creating learning spaces which involve self-regulated learning and situation learning. They have transformed the roles of the instructor and students. Instructors are expected to facilitate the experiential and self-regulated learning process while students engage, interact, and collaborate with their peers and online resources. With transition comes an implication. Brown and Lippincott (2003) addressed that it is critical for postsecondary institutions to consider the type of support required to make learning spaces successful. This includes training faculty to be comfortable with implementing technology in the courses, creating interactive learning, and utilizing digital course materials. Yee (1998) expressed that colleges that are flexible and prepared to provide a new generation of learning will be better equipped to increase student persistence among the Millennial population.

Chapter III: METHODOLOGY

INTRODUCTION

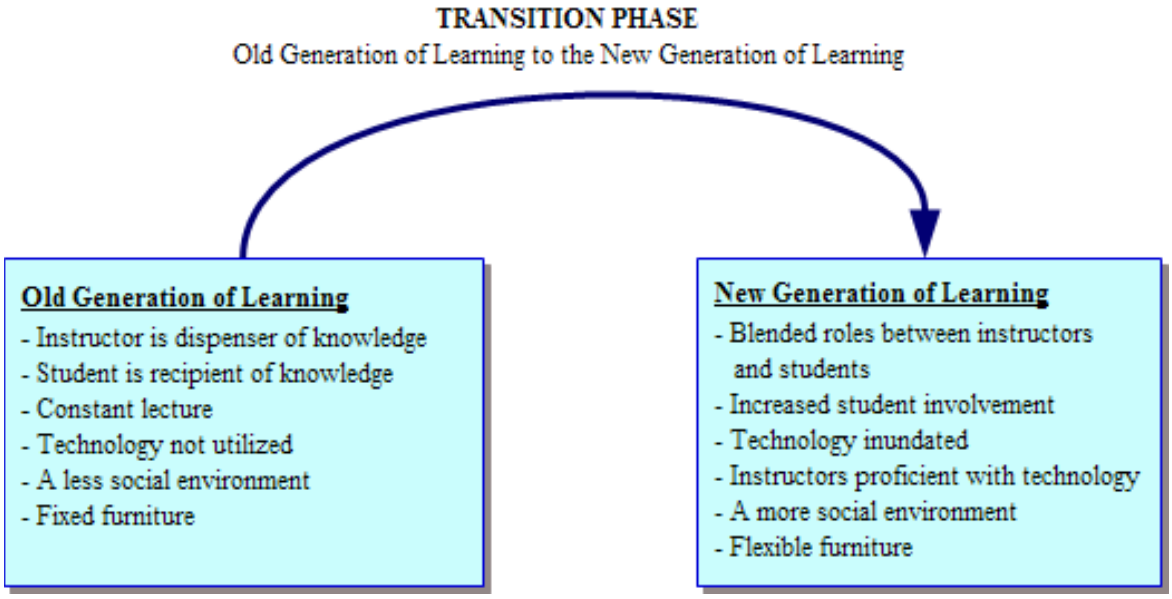
This chapter lists the research questions, discusses the rationale for the choice of qualitative methodology, describes the case study (unit of analysis), and explains the procedures used for data collection and analysis known as Interactive Qualitative Analysis (IQA).

STATEMENT OF THE PROBLEM

Prensky (2001) expressed that educational institutions continue to focus on the old generation of learning that is time-bound, place-bound, efficiency-bound, and role-bound. They assume that today's learners are the same as they have always been, and that the same methods that worked for faculty when they were students will work for students now. However, the Millennial generation has different habits and learning expectations in comparison to previous generations (Strauss & Howe, 2000; Oblinger, 2003). This was discussed in greater detail in Chapter 2. Oblinger (2006a) stated that the Millennial students are forced to work against their social nature, which involves "active, participatory, experiential learning" (Oblinger, 2006a, p. 1.1). Since the Millennials' way of thinking, communicating, and learning has been shaped by technology (O'Bannon, 2001; Levin & Arafeh, 2002), their enrollment in higher education will create a challenge for educators and administrators "to identify the changes that will be required to cater to a new technologically savvy generation of students" (Dwyer & Pospisil, 2004, p.194). Furthermore, postsecondary institutions will

encounter challenges during the transition phase from transforming an old generation of learning into a new generation of learning as shown in Illustration 3.01.

Illustration 3.01: Transition from the Old Generation of Learning to the New Generation of Learning

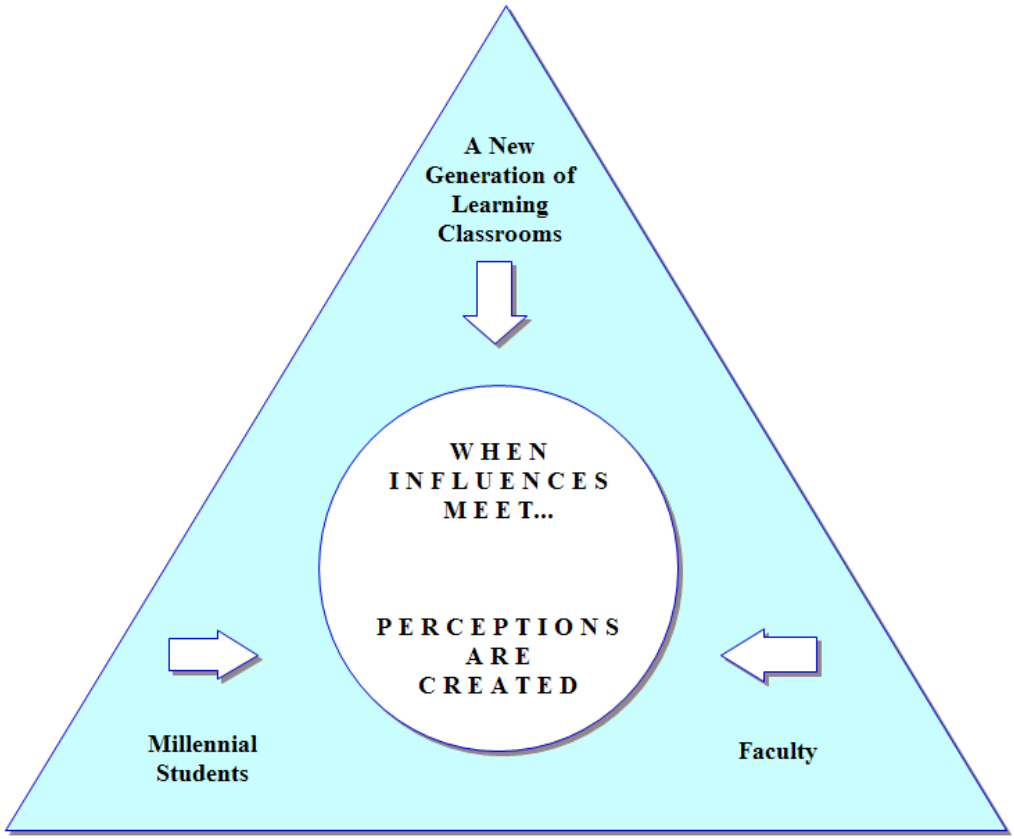


Source: Acevedo (2007b)

PURPOSE OF THE STUDY

The purpose of the study was to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms. Illustration 3.02 is a graphic which shows the purpose of the study.

Illustration 3.02: Image of Qualitative Research Study



Source: Acevedo (2007a)

A second purpose was to extend current theory and empirical knowledge about the interaction of Millennial students and instructors in a new generation of learning. A third purpose was to generate new hypotheses and identify additional research which is necessary for a better understanding about the groups' perceptions of the new generation of learning classrooms.

RESEARCH QUESTIONS

The research questions for this qualitative study are:

1. What are the perceptions of a new generation of learning classrooms by Millennial students?
2. How do Millennial students relate to a new generation of learning classrooms?
3. What are the perceptions of a new generation of learning classrooms by faculty?
4. How do faculty relate to a new generation of learning classrooms?
5. How do Millennial students' and faculty's perceptions on the new generation of learning classrooms compare?

QUALITATIVE METHODOLOGY

The identification and description of a learning environment made it necessary to use a qualitative methodology to gather and analyze data concerning the new generation of learning classrooms. Mertens (2005) defined qualitative methods as "a situated activity that locates the observer in the world" (p. 229). Qualitative researchers "study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 1998, p. 3). It "involves the use and a collection of a variety of empirical materials that describe moments and meanings in individuals' lives" (Denzin & Lincoln, 1998, p. 3). Gay, Mills, and Airasian (2006) provide the most recent insights about the use of qualitative research when they observe that:

> The central focus of qualitative research is to provide an understanding of a social setting or activity as viewed from the perspective of the research participant. In addition to involving the collection of narrative and visual data over a period time

> in a natural, non-manipulated setting, qualitative studies share several other characteristics…Qualitative researchers spend a great deal of time with participants and are immersed in the research setting. The detailed recording of the processes occurring in the natural setting provides the basis for understanding the setting, the participants and their interactions. Without this immersion, the search for understanding would elude the qualitative researcher. (p. 402)

There are several other essential elements of qualitative research that are also brought forth by Gay, Mills, and Airasian (2006, p. 402). These can be summarized as:

- The focus of qualitative research is on individual person-to-person interactions.
- The qualitative researcher must avoid making any preliminary decisions or assumptions about the study and as such must always be ready and willing to accept other explanations for the phenomena under study.
- Qualitative researchers should not make any prior assumptions about the environment or data and must wait until they are immersed in the environment to begin any assessments.
- The data that are collected is analyzed by finding patterns, relationships or common themes within the environment and this establishes a framework or foundation for the inductive analysis

Ragin (1994) explained that there are three main goals to qualitative research. First, a qualitative study provides a voice for the population experiencing the phenomenon. This approach is suited to represent groups that "escape the grasp of other approaches" (p. 83). Second, a qualitative study interprets phenomena (Ragin, 1994). This method will "provide rich insight" into the specific phenomenon (Guba & Lincoln, 1998, p. 198). According to Hammersley (1992), qualitative data is reliable since it "documents the world from the point of view of the people studied…rather than

presenting it from the perspective the researcher" (p. 45). In order to understand individuals behaviors, Liamputtong & Ezzy (2005) proposed that researchers must understand the person's meanings and interpretations that give reasons to the behavior. Third, a qualitative study advances theory (Ragin, 1994). This method refines concepts that initially promoted the research.

Gay, Mills, and Airasian (2006) stated that qualitative researchers can establish trustworthiness in their research by addressing the credibility, transferability, dependability, and confirmability of their studies and findings. These variables can be described as:

> First, a researcher must take into account all the complexities in the study being conducted and address problems that are not easily explained (credibility). The researcher should also include descriptive, context-relevant statements so the consumer can identify with the setting (transferability). Qualitative researchers should include as much detail as possible so others can see the setting for themselves. Another issue the researcher needs to address is the stability of the data collected (dependability). Finally, the researcher should address the neutrality and objectivity of the data (confirmability). (p. 403)

Maxwell (1992) substantiated Gay, Mills and Airasian on the elements of trustworthiness of qualitative research by addressing descriptive validity, interpretive validity, theoretical validity, generalizability, and evaluative validity as delineated in Table 3.01.

Table 3.01: Maxwell's Criteria for Qualitative Research Validity

Criteria	Definition
Descriptive Validity	Factual accuracy.
Interpretive Validity	Concern for the participant's perspective.
Theoretical Validity	The ability of the research report to explain the phenomenon that has been studied and described.
Generalizability	*Internal Generalizability:* Generalizability within the community that has been studied. *External Generalizability:* Generalizability to settings that were not studied by the researcher.
Evaluative Validity	Whether the researcher is able to present the data without being evaluative or judgmental.

Source: Maxwell (1992)

Descriptive validity refers to the accuracy the qualitative researcher must ensure in the study. Thus, the researcher avoids the distortion of data. Interpretive validity refers to that the meaning attributed to the behavior or words of the participants is understood from their perspective. In other words, the researcher accurately interprets the participants' words or actions. Theoretical validity refers to the ability to explain the phenomenon being studied in relation to an identified theory. Generalizability addresses whether the research findings can be shared with other populations. Evaluative validity indicates whether the researcher was objective and unbiased, rather than making judgments about the data.

The role of qualitative research is to generate hypotheses for further study or to offer extensions to existing theories. This type of methodology provides a holistic

description in understanding the experiences and perspectives of people in their environment (Wallen & Fraenkel, 2001; Merriam & Associates, 2002).

Grounded Theory

The theoretical approach adopted for this study was grounded theory. It was the foundation for the development of this qualitative research study. Strauss & Corbin (1998) defined grounded theory as "a general methodology for developing theory that is grounded in data systematically gathered and analyzed. Theory evolves during actual research through continuous interplay between analysis and data collection" (p. 158). This theory allows the participants to express their viewpoints in the research; hence, researchers "interpret the data and use it as a basis for theory generation" (Mertins, 2005, p. 242). The use of grounded theory requires an answer to the question: How is an inductively derived theory about a phenomenon grounded in the data in a particular setting? (Gay, Mills, & Airasian, 2006).

Case Study – Redwood Community College

The investigator conducted this qualitative research through the use of the case study approach. Case studies involve a close examination of people, topics, issues, and programs (DeMarrais & Lapan, 2004). Freebody (2003) stated that case studies "document the story of a naturalistic-experiment-in-action" (p. 82). This approach began with the selection of a phenomenon: - the implementation of a new generation of learning to meet the academic needs of a more technology literate client who are known as the Millennial students. In a case study, "the selection is done purposefully, not randomly; that is, a particular person, site, program, process, community, or other bounded system is selected because it exhibits characteristics of interest to the researcher" (Merriam &

Associates, 2002). Case studies provide "a colorful description" of the phenomenon for the reader to learn through the researcher's narrative description. Each case study focuses on a single unit.

The unit of analysis for this case study was the new generation of learning classrooms at a community college. For the purpose of this dissertation, the postsecondary institution will be given the following pseudonym: Redwood Community College (RCC). RCC has recognized that the new generation of students has different ideas on how and where learning should occur. To meet these emerging needs and expectations of its students, the college maximized learning opportunities through the design of innovative learning spaces and the integration of technology. In 2005, RCC partnered with local and national businesses to transform the traditional classroom instructional environment into a new generation of learning classrooms. These new environments provide "faculty and learners with an opportunity to experiment with radical flexibility in space, furnishings, and technology—all targeted at increasing student engagement and success" (Lopez & Gee, 2006). Radical flexibility is defined as "freeing up faculty and students to customize the learning environment to meet the teaching and learning pedagogy, delivery system, and technology needs on demand" (Oblinger, 2006b, p. 46). For instance, furniture can be easily moved to fit the learning task and wireless networking gives anywhere-anytime access to students. The goals of a new generation of learning are (Lopez & Gee, 2006, p. 19.1):

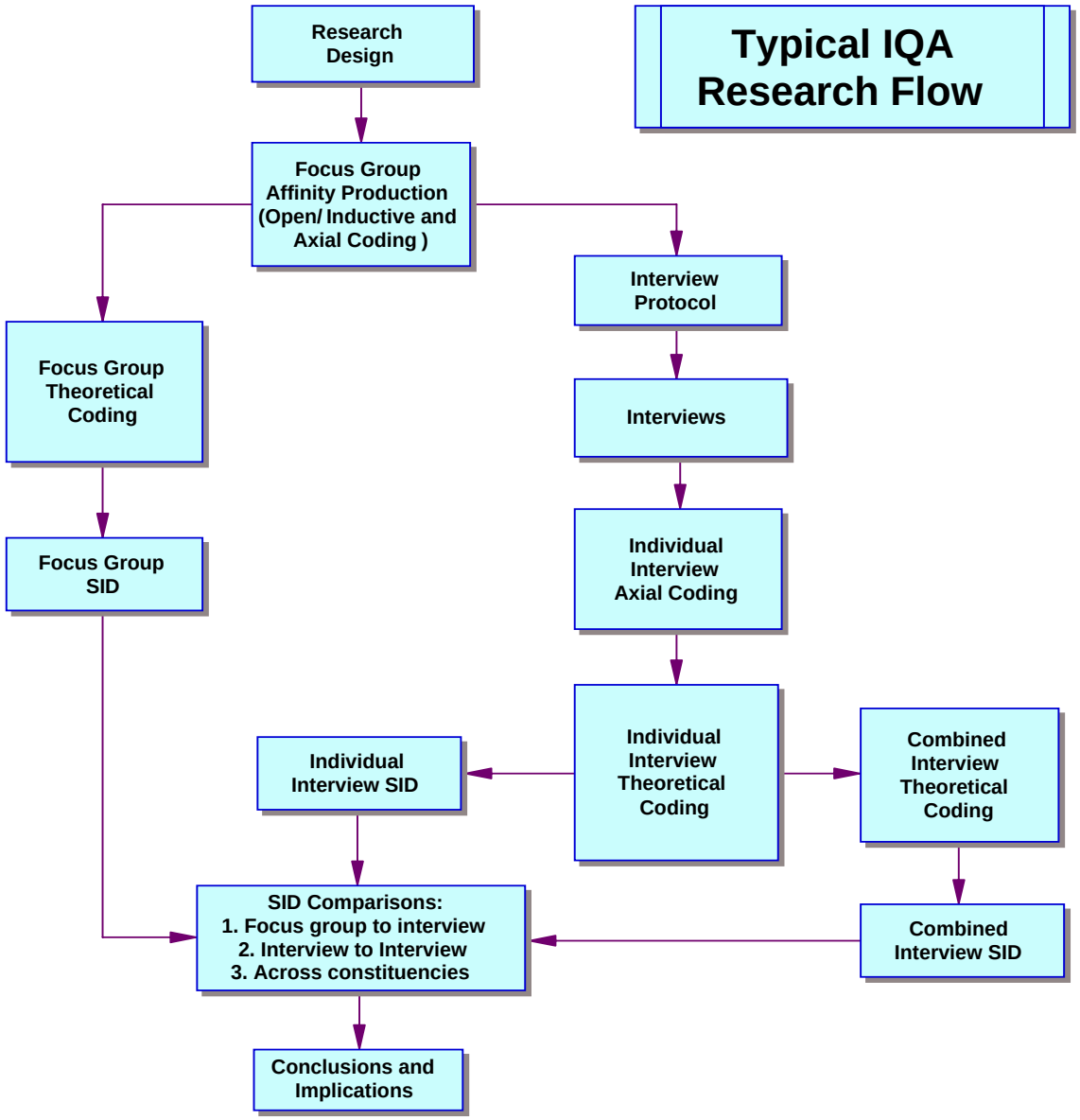
- Streamlining classroom design, technology, furniture, lighting, and electrical access
- Providing furniture that facilitates learning activities, wireless networking, and quick reconfiguration.

- Making technology easy to use and lighting adaptable to facilitate mobile teaching stations and collaborative spaces for group work.
- Increasing student engagement and success through innovative spatial relationships, ergonomic design, and seamless technology.

INTERACTIVE QUALITATIVE ANALYSIS (IQA)

The research design utilized for this study was Interactive Qualitative Analysis (IQA), which was developed at The University of Texas at Austin by Norvell Northcutt and Danny McCoy. The purpose of an IQA study is to allow participants in a study to examine issues and create their own interpretive meaning. The IQA research methodology was conducted in four distinct phases: research design, focus group, interviews, and report. The focus groups and interviews were methods that the investigator utilized to gather and analyze data. Illustration 3.03 outlines the flow of events in a typical IQA study. The investigator also researched if the Self-Regulated Learning and Situated Learning were evident in the environment.

Illustration 3.03: IQA Research Flow

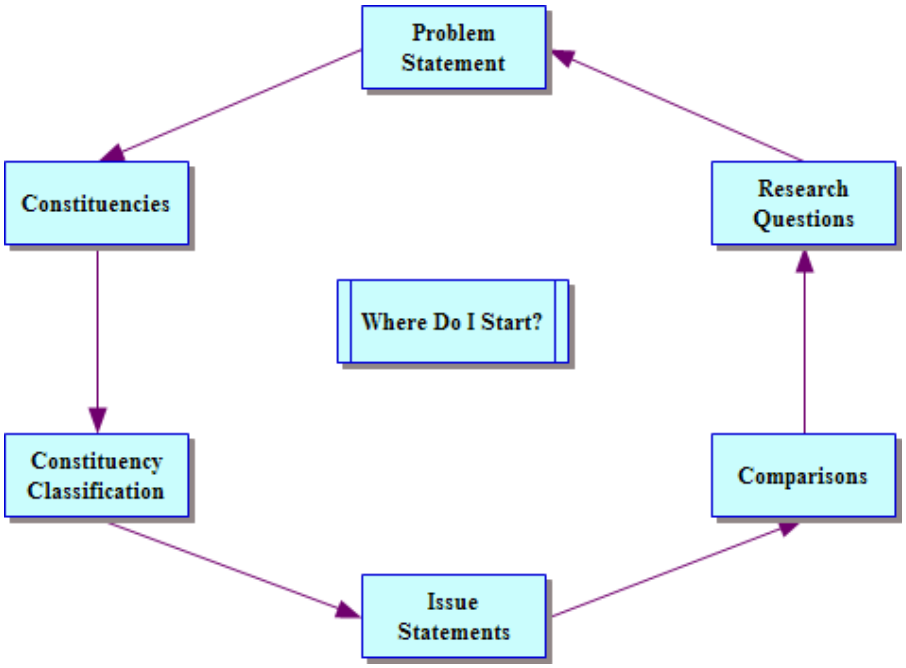


Source: Northcutt and McCoy (2004)

Research Design

The IQA process began with a research design loop shown in Illustration 3.04. The objective of the loop process was to align the problem statement and the research questions.

Illustration 3.04: IQA Research Design Loop



Source: Northcutt and McCoy (2004)

The problem statement began as an observation. Any group of people who were affected by the phenomenon was identified as a potential constituent (participant) for the study. Next, the investigator sorted constituents based upon their distance from the problem and their power over the problem. Constituents who had the closest distance and the most power over the phenomenon were selected to participate in the study. Then, issue statements were prepared for each constituent. These statements posed a question designed to elicit their perceptions of the phenomenon. Northcutt & McCoy (2004) stated

that "different constituencies have different perspectives on the same phenomenon, so the issue statement must be meaningful to each" (p. 72). The issue statement always began with an open-ended question - "Tell me about…" The questions were formulated to not influence the group's thinking.

The final step in the research design loop was the comparison of research questions to the problem statement. To determine alignment, the following questions were addressed:

1. What problem do the research questions address?
2. Is this the problem originally outlined in the problem statement?

Participants

A purposive sampling method was employed for this study. Liamputtong and Ezzy (2005) proposed that purposive sampling selects information-rich cases that generate desired data. Northcutt and McCoy (2004, p. 87) explained that participants will have the following characteristics:

- They are information rich, possessing knowledge and/or experience with, the issue.
- They have the ability to reflect on the question and to transfer those thoughts into words.
- They have the time and inclination to participate in the study.
- They are homogeneous with respect to important dimensions of distance and power.
- They can respect and practice group dynamics.

The participants in this study involved Millennial students and faculty who met the following criteria:

- Millennial Students (closest to phenomenon) – (1) Redwood Community College (RCC) community college student, (2) Enrolled in a class both in a new generation of learning classroom and a traditional classroom (old generation of learning) in any semester, and (3) Enrolled in community college for the spring 2007 term, and (4) Between the ages of 18 and 24-years-old.
- Faculty (most power over phenomenon) – (1) Community college full-time or part-time faculty at RCC, and (2) Taught a course in a new generation of learning classroom and a traditional classroom (old generation of learning).

They were selected since the researcher believed they were the best sources about the phenomenon. Focus groups and interviews were conducted with students and faculty.

Focus Groups

Northcutt & McCoy (2004) explained that the purpose of the focus group is to assist participants close to the phenomenon in "describing and labeling their experiences, and in articulating perceived relationships among these experiences to produce a conceptual map, which is a systems representation of how a person or a group understands a particular phenomenon" (p. 81). In preparation for the focus groups with the millennial students and faculty, the investigator identified issue statements that "could be asked of each group that would reflect some light on the problem" (Northcutt & McCoy, 2004, p. 77). Issue statements were developed for the various participants. These are included in Appendix C. After creating an issue statement from the research questions, the data collection for the study began with the constituents participating in focus groups.

IQA Focus Group Process

Facilitating an IQA focus group consists of the following steps: explaining the focus group process to the constituents, performing a warm-up exercise (see Appendix D), leading a nominal group process, identifying and organizing and group affinities (inductive coding), revising affinities (axial coding), and analyzing data.

Focus group process.

At the beginning of each focus group, the investigator introduced the nature and purpose of the study which was part of the warm-up exercise (Appendix D). Participants received consent forms (Appendix E) to assure confidentiality throughout the research process.

Warm-up exercise.

The warm-up exercise was designed to clear the mind of the Millennial students and faculty of all thoughts except the issue at hand. See Appendix D. The facilitator presented a guided imagery process where the participants were asked to relax, close their eyes, and focus on the effects from the new generation of learning environment.

Nominal group process.

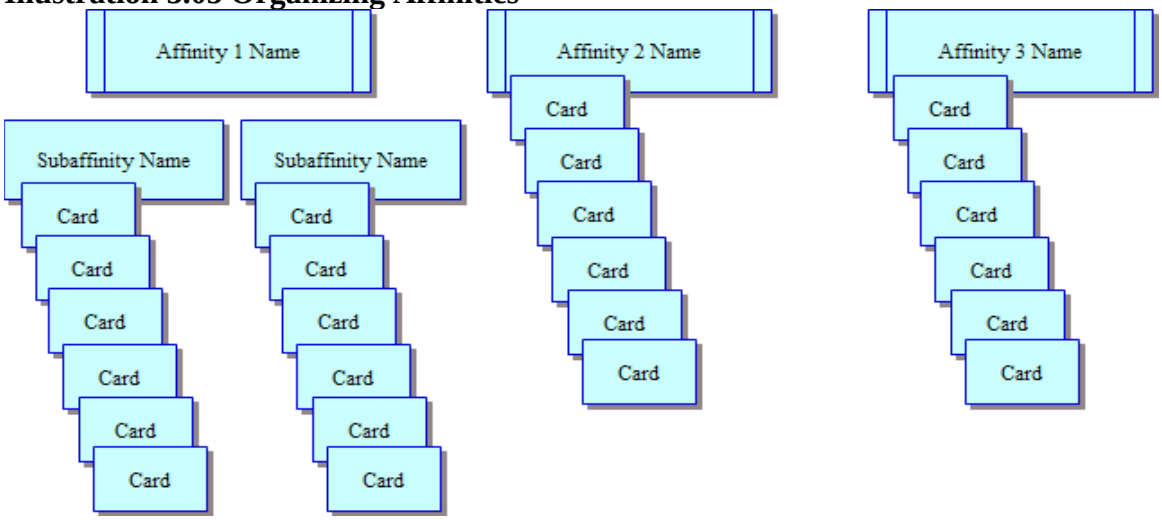
The investigator then asked the group members to participate in a silent nominal technique. After providing the participants with adequate time to think and reflect on the warm-up exercise, each participant was given a marker and a stack of index cards to write one word, phrase, or idea per card regarding the effects of a new generation of learning. Northcutt & McCoy (2004) emphasized that the silent nominal technique generates a

large amount and variety of data, as opposed to verbal brainstorming, which often causes a group to follow a single train of thought. This technique prevents a hierarchical influence or dominant participants from altering individual responses (Northcutt & McCoy, 2004).

Organize and group affinities (inductive coding).

Once participants produced as many cards as possible in the time provided, the investigator instructed the participants to tape the cards along a wall and begin the coding process of grouping cards into similar themes (Northcutt & McCoy, 2004). The facilitator reviewed each card and assisted the group in clarifying the meaning of each card. Participants were asked to cluster and group cards into categories silently. Northcutt & McCoy (2004) stated that the goal of the inductive coding process is to organize data into categories, which are referred to as affinities. This process is shown in Illustration 3.05.

Illustration 3.05 Organizing Affinities



Source: Northcutt and McCoy (2004)

Revise affinities (axial coding).

The Millennial students and faculty were asked to reorganize affinities if needed. Through group discussion and consensus, students were encouraged to narrow down the meaning of the affinities into sub affinities if necessary. Northcutt & McCoy (2004) stated that axial coding seeks to name, organize, clarify, and refine affinities. Finally, the investigator facilitated a group discussion in which affinities were given appropriate titles that accurately reflected the meaning of each affinity within the designated category. The subaffinities are shown in Illustration 3.05. After each affinity was named, the investigator used the data gathered from the cards and focus group discussion to write a paragraph describing each affinity.

Analyze Data

Theoretical coding "refers to ascertaining the perceived cause-and-effect relationships (influences) among all the affinities in a system (Northcutt & McCoy, 2004, p. 149).

Theoretical Coding - Affinity Relationship Table (ART).

In this process, participants were given the task to analyze the relationships between each of the affinities. They were given the option to choose only one of the following options:

- A → B ("A" influences "B")
- A ← B ("B" influences "A")
- No relationship (<>)

If, for instance, a focus group member determined that affinity B influenced affinity A, a left arrow was placed between the pair. These directions of influences were

recorded on an Affinity Relationship Table (ART) as shown in Table 3.02. In this example, there are four affinities which are represented by numbers and compared with each other.

Table 3.02: Sample Focus Group Affinity Relationship Table (ART)

Affinity Relationship Table		
1	←	2
1	←	3
1	→	4
2	←	3
2	<>	4
3	←	4

Source: Northcutt and McCoy (2004)

Interrelationship Diagram (IRD).

After the completion of the ART, the relationships were recorded in an Interrelationship Diagram (IRD). The IRD is a matrix which "shows whether each affinity in a pair is a perceived cause or an effect, or if there is no relationship between the affinities in the pair" (Northcutt & McCoy, 2004, p. 170). A sample IRD is shown in Table 3.03.

Table 3.03: Sample Interrelationships Diagram (IRD)

Tabular Interrelationships Diagram (IRD)									
	1	**2**	**3**	**4**	**5**	**6**	**OUT**	**IN**	**Δ**
1		←	←	←	←	←	0	5	-5
2	↑		↑	←	↑	←	3	2	1
3	↑	←		←	←	←	1	4	-3
4	↑	↑	↑		↑	←	4	1	3
5	↑	←	↑	←		←	2	3	-1
6	↑	↑	↑	↑	↑		5	0	5

Count the number of up arrows (↑) or *Out*
Count the number of left arrows (←) or *In*
Subtract the number of *Ins* from the *Outs* to determine the (Δ) *Deltas (*Δ = Out- In)

Source: Northcutt and McCoy (2004)

In this IRD matrix, arrows may point only left or up, and each relationship was recorded twice in the IRD. For instance, if a relationship existed between affinity 1 and affinity 2, it might be noted as 1 ← 2 and read as 2 influences 1. Two arrows were placed in the IRD to represent the relationship, and in both cases pointed away from 2 and toward 1. All ART relationships were recorded in the table in this manner once with an up arrow and once with a left arrow. The arrows were then counted to find the value of delta (Δ). The rules for calculating delta are: count the number of up arrows (↑) or *Outs*; count the number of left arrows (←) or *Ins*; and subtract the number of *Ins* from the *Outs* to determine the (Δ) deltas. Those values were then inputted in the (Δ) delta column as shown in Table 3.03 The IRD table was then sorted in descending order of (Δ) deltas to determine the position of each affinity in the overall system (see Table 3.04).

Table 3.04: Sample IRD Sorted in Descending Order of Delta

Tabular IRD Sorted in Descending Order of Delta									
	1	**2**	**3**	**4**	**5**	**6**	**OUT**	**IN**	**Δ**
6	↑	↑	↑	↑	↑		5	0	5
4	↑	↑	↑		↑	←	4	1	3
2	↑		↑	←	↑	←	3	2	1
5	↑	←	↑	←		←	2	3	-1
3	↑	←		←	←	←	1	4	-3
1		←	←	←	←	←	0	5	-5

Source: Northcutt and McCoy (2004)

Since the (Δ) deltas were sorted, the order of affinities was revised and was identified as drivers or outcomes: Primary Driver, Secondary Driver, Pivot, Secondary Outcome, and Primary Outcome. The Primary Driver is "a significant cause that affects many other affinities but is not affected by others" (Northcutt & McCoy, 2004, p. 173). The Secondary Drivers is either a cause or influence on the affinities. It has *Outs* than *Ins* as shown in Table 3.04. A system may also contain Pivot zones, which occur when an affinity does not cause or affect any other element in the system. Affinities will have equal numbers of *Ins* and *Outs*. The Secondary Outcomes are affinities that are influenced by secondary drivers but affect the primary outcomes (Northcutt & McCoy, 2004). This affinity has more *Ins* than *Outs*. An affinity with high negative numbers which is caused by many *Ins* but no *Outs* is a Primary Outcome. This affinity has no *Outs*.

Systems Influence Diagram (SID).

After the IRD was complete and the drivers and outcomes were identified, a Systems Influence Diagram (SID) was created to show the relationships between affinities and positions in the overall system (Table 3.05).

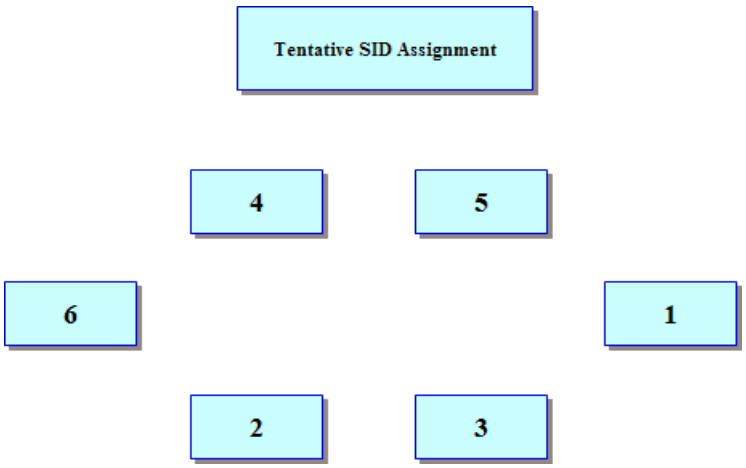
Table 3.05: Sample Tentative SID Assignment

Tentative SID Assignments	
6	Primary Driver
4	Secondary Driver
2	Secondary Driver
5	Secondary Outcome
3	Secondary Outcome
1	Primary Outcome

Source: Northcutt and McCoy (2004)

In this SID, affinity number 6 was identified as the Primary Driver, and affinity number 1 was considered a Primary Outcome. Northcutt and McCoy (2004) indicate that a SID is "a visual representation of an entire system of influences and outcomes" (p. 174), and shows "where a system might be influenced to change its outcomes" (p. 175). The tentative SID assignments were used to determine the relative positions of the affinities in the system as shown in Illustration 3.06.

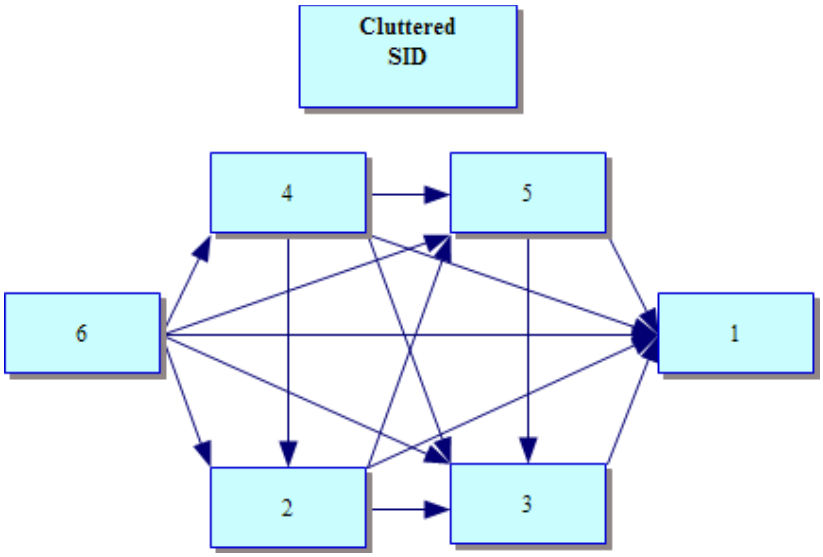
Illustration 3.06: Sample Tentative SID Assignments



Source: Northcutt and McCoy (2004)

Next, all affinities were linked according to the directional arrows in the IRD. The placing of the arrows was done from left to right in the SID. The result is a Cluttered SID as shown in Illustration 3.07.

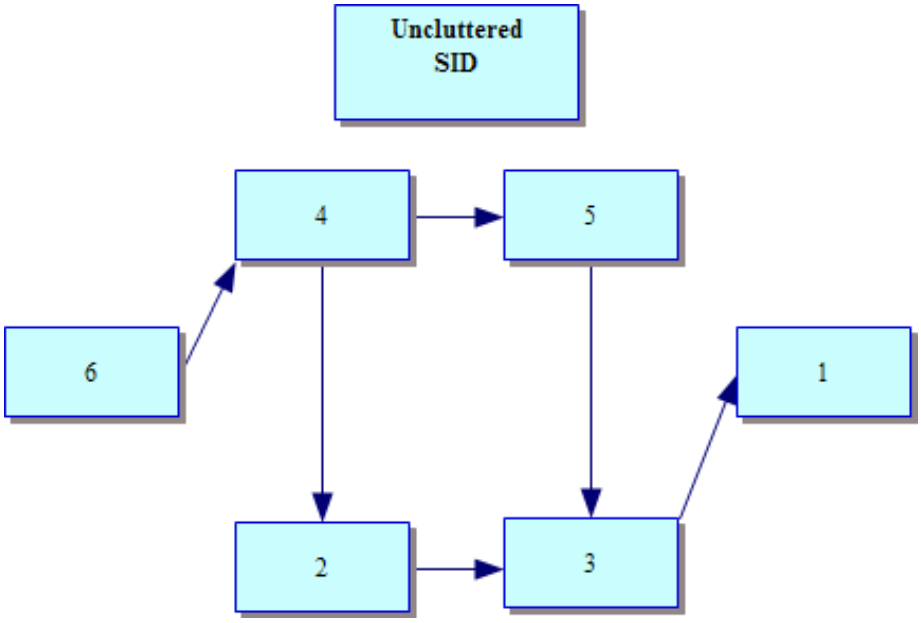
Illustration 3.07: Sample Cluttered SID



Source: Northcutt and McCoy (2004)

Northcutt and McCoy (2004) recommend that redundant links be eliminated from the SID. This removal process began by comparing relationships between affinities with the highest positive delta and the one with the highest negative delta. If there was an indirect path that illustrated affinity number 6 influences affinity number 1, then the direct link connecting these two affinities was deleted from the SID. This process continued until all relationships between the affinities were analyzed. An example of the outcome, which is known as an Uncluttered SID, is in Illustration 3.08.

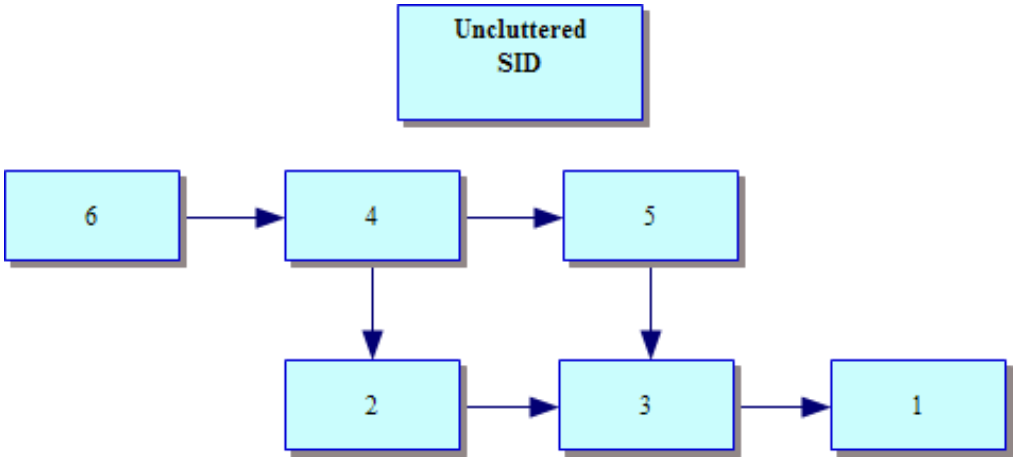
Illustration 3.08: Sample Uncluttered SID



Source: Northcutt and McCoy (2004)

An optional format for a clean Uncluttered SID is shown in Illustration 3.09.

Illustration 3.09: Sample Clean Uncluttered SID (Optional Format)



Source: Northcutt and McCoy (2004)

Interviews

The next phase of data gathering in IQA is individual interviewing with the millennial students and faculty. The content of the interview was "determined by the affinities developed from the focus group" (Northcutt & McCoy, 2004, p. 197), which shaped the questions asked to each individual.

IQA Interview Process

The interview protocol consisted of two parts – the axial and theoretical interviews. The axial interview was designed to provide rich description of affinities by the respondents whereas the theoretical interview was designed to identify relationships between affinities (Northcutt & McCoy, 2004).

Axial and Theoretical Interviews.

In the axial interview process, the same questions were asked to each individual. The interviewing began with discussing the primary driver in the sorted IRD and

proceeding with other affinities. During this process, the investigator shared the focus group's definition of each affinity with the participants and then engaged in a dialogue by stating, "Tell me what this means to you." If the participants did not elaborate on their answers, a follow-up question was asked. Participants remained anonymous throughout the interview process. Participants were each given a numerical identification so their conversations could be recorded, and they could be encouraged to share their thoughts more freely.

Once all affinities were discussed, the investigator asked the participant their perception of the relationships between each affinity. Each participant was given an Affinity Relationship Table (ART) to guide the interview.

Analyze Data

In preparation for analyzing the interview data, the investigator created transcripts for each interview and used axial and theoretical coding.

Interview Axial Code Table (ACT).

Next, an Interview Axial Code Table (ACT) was created for each participant. The investigator studied the quotations and phrases on each affinity located on the transcript. The statements, transcript line number, and investigator's notes were then documented on the ACT as shown in Table 3.06.

Table 3.06: Sample Interview Axial Code Table (ACT)

Interview Axial Code Table (ACT)			
Affinity	**Transcript Line**	**Axial Quotation**	**Researcher Notes**
1.			
2.			
3.			
4.			
5.			

Source: Northcutt and McCoy (2004)

Interview Theoretical Code Table (TCT).

The next step of the individual interviews was theoretical interview coding. The participants were asked to discuss the relationships between each affinity. In comparison to the focus group, respondents chose between three possible relationships:

- A → B ("A" influences "B")
- A ← B ("B" influences "A")
- No relationship (<>)

The statements, transcript line number, and investigator's notes were then documented on the Individual Theoretical Code Table (TCT) as shown in Table 3.07.

Table 3.07: Sample Interview Theoretical Code Table (TCT)

Interview Theoretical Code Table (TCT)			
Affinity Pair Relationship	**Transcript Line Number**	**Theoretical Quotation**	**Researcher Notes**
1 → 2			
1 ← 3			
1 <> 4			
1 <> 5			
2 ← 3			

Source: Northcutt and McCoy (2004)

Combined Interview Coding. Once all interviews have been coded, the data were summarized to create a Systems Influence Diagram (SID). The SID represents the mindmap of how people understand or construct a phenomenon (Northcutt & McCoy, 2004). Before the SID is created, coding must take place.

Combined Axial Code Table (ACT).

After the individual interviews were coded, the data was combined to create a Combined SID. Next, data from each Interview ACT was transferred to a Combined ACT as shown in Table 3.08. This allowed the investigator to create a database of all interviews.

Table 3.08: Sample Combined Axial Code Table (ACT)

Combined Axial Code Table (ACT)			
Affinity	**Transcript Line Number**	**Axial Quotation**	**Researcher Notes**
1.			
2.			
3.			
4.			

Source: Northcutt and McCoy (2004)

Combined Theoretical Code - Affinity Relationship Table (ART).

Since individual respondents may have defined relationships differently, this table lists both directions for relationships among affinities as shown in Table 3.09.

Table 3.09: Sample Combined Theoretical Code–Affinity Relationship Table (ART)

Combined Theoretical Code - Affinity Relationship Table (ART)			
Affinity Pair Relationship	**Transcript Line Number**	**Theoretical Quotation**	**Researcher Notes**
1 → 2			
1 ← 2			
1 → 3			

Source: Northcutt and McCoy (2004)

Theoretical Code Frequency Table (TCT).

Once the Combined Interview Theoretical Code Affinity Relationship Table was completed, the investigator tallied the number of respondents (frequency) who identified the relationship in the same direction. The frequencies were recorded in a Combined Interview Theoretical Code Frequency Table (TCT). An example of this table is shown in Table 3.10.

Table 3.10: Sample Combined Theoretical Code Frequency Table (TCT)

Combined Theoretical Code Frequency Table (TCT)		
Affinity Pair relationship	**Frequency**	**Theoretical Code**
1 → 2	10	1 → 2
1 ← 2	4	
1 → 3	1	1 ← 3
1 ← 3	13	

Source: Northcutt and McCoy (2004)

Additionally, if the frequencies were close in number (e.g., 1→ 4 and 1← 4), the investigator flagged the affinity relationship and considered it as a recursion (Northcutt & McCoy, 2004).

Pareto Protocol.

Northcutt and McCoy (2004) explained that if a relationship was not obvious, then the Pareto Protocol Principle should be utilized to document the degree of consensus of a given relationship. This process involves a Pareto Cumulative Frequency Chart which allows the investigator to determine the frequency number that will become the cut off point for determining which relationships should be accepted.

Systems Influence Diagram (SID).

After the investigator completed the Combined Interview Theoretical Code Frequency Table and the Pareto Protocol, a SID (mindmap) was created. Northcutt and McCoy (2004) explained that "these mindmaps (SIDs), together with the participants' axial codes (descriptions of the affinities), are the foundation for interpretation" which is the last stage of the study.

SUMMARY

This chapter described the qualitative research methodology, explained the rationale for the choice of qualitative methodology, and discussed the Redwood Community College case study as the unit of analysis. Additionally, this section highlighted Interactive Qualitative Analysis (IQA) as the research design used for data collection and analysis.

Chapter IV: RESULTS

INTRODUCTION

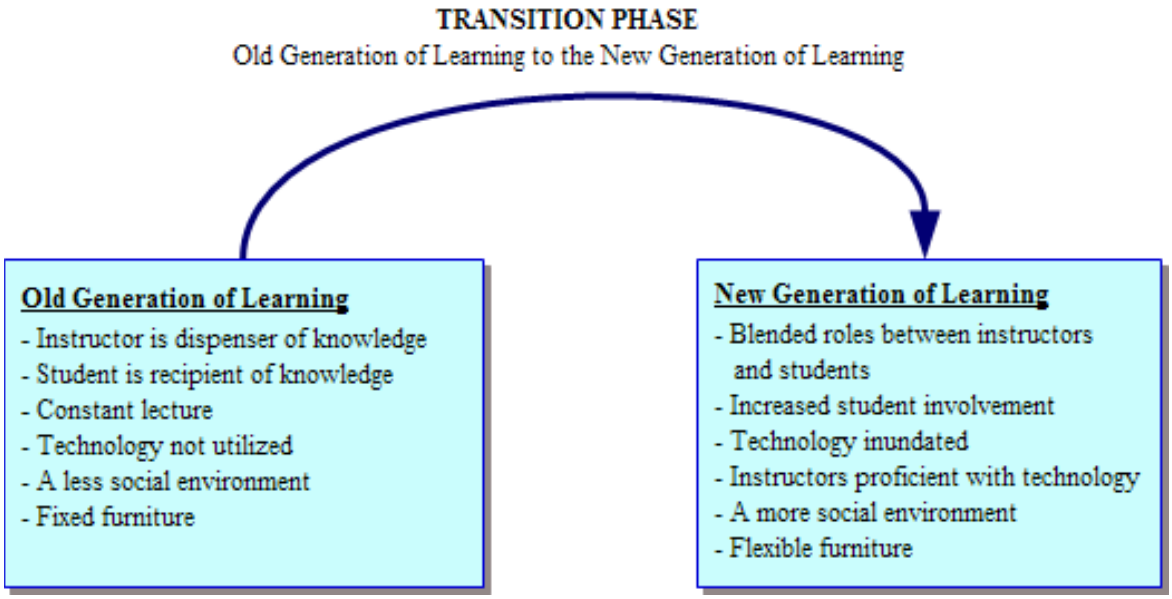
Chapter IV presents the data from the Millennial students and faculty focus groups and interviews. This was collected by the investigator. Focus groups and individual interviews with students and faculty were conducted utilizing the research design from Interactive Qualitative Analysis. The focus group component facilitated the naming of themes (known as affinities). The interviews facilitated the describing of affinities and the direction of influence. This chapter begins with an overview of the statement of the problem, purpose of the study, research questions, and participant descriptions. Then, the axial coding summary of the factors described by the students is discussed, which is followed by a theoretical coding summary. This describes the relationships between these factors and a conceptual mind map which visually depicts the system. The axial and theoretical coding are also discussed for faculty.

STATEMENT OF THE PROBLEM

Prensky (2001) expressed that educational institutions continue to focus on the old generation of learning that is time-bound, place-bound, efficiency-bound, and role-bound. They assume that today's learners are the same as they have always been, and that the same methods that worked for them when they were students will work for their students now. However, the Millennial generation has different habits and learning expectations in comparison to previous generations (Strauss & Howe, 2000; Oblinger, 2003). This was discussed in greater detail in Chapter 2. Oblinger (2006a) expressed

that the Millennials' are forced to work against their social nature, which involves "active, participatory, experiential learning" (Oblinger, 2006a, p. 1.1). Since the Millennials' way of thinking, communicating, and learning has been shaped by technology (O'Bannon, 2001; Levin & Arafeh, 2002), their enrollment in higher education will create a challenge for educators and administrators "to identify the changes that will be required to cater to a new technologically savvy generation of students" (Dwyer & Pospisil, 2004, p.194). Furthermore, postsecondary institutions will encounter challenges during the transition phase from transforming an old generation of learning into a new generation of learning as shown in Illustration 4.01.

Illustration 4.01: Transition from the Old Generation of Learning to the New Generation of Learning

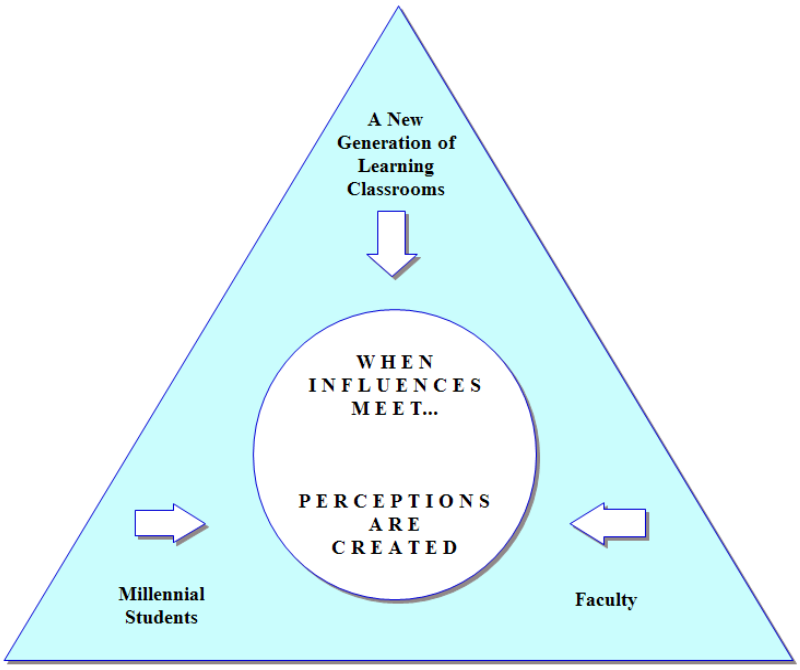


Source: Acevedo (2007b)

PURPOSE OF THE STUDY

The purpose of the study is to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms. Illustration 4.02 is a graphic which shows the purpose of the study.

Illustration 4.02: Image of Qualitative Research Study



Source: Acevedo (2007a)

A second purpose is to extend current theory and empirical knowledge about the interaction of Millennial students and instructors in a new generation of learning. A third purpose is to generate new hypotheses and identify additional research which is necessary for a better understanding about the groups' perceptions of the new generation of learning classrooms.

RESEARCH QUESTIONS

The following are research questions for this qualitative study:

1. What are the perceptions of a new generation of learning classrooms by Millennial students?
2. How do Millennial students relate to a new generation of learning classrooms?
3. What are the perceptions of a new generation of learning classrooms by faculty?
4. How do faculty relate to a new generation of learning classrooms?
5. How do Millennial students' and faculty's perceptions on the new generation of learning classrooms compare?

PARTICIPANTS

A purposive sampling method was employed for this study. Liamputtong and Ezzy (2005) propose that purposive sampling selects information-rich cases that generate desired data. Northcutt and McCoy (2004, p. 87) explained that participants have the following characteristics:

- They are information rich, possessing knowledge or, and experience with, the issue.
- They have the ability to reflect on the question and to transfer those thoughts into words.
- They have the time and inclination to participate in the study.
- They are homogeneous with respect to important dimensions of distance and power.
- They can respect and practice group dynamics.

The participants in this study included Millennial students and faculty who met the following criteria:

- Millennial Students (closest to phenomenon) – (1) Redwood Community College (RCC) community college student, (2) Enrolled in a class both in a new generation of learning classroom and a traditional classroom (old generation of learning) in any semester, and (3) Enrolled in community college for the spring 2007 term, and (4) Between the ages of 18 and 24-years-old.
- Faculty (most power over phenomenon) – (1) Community college full-time or part-time faculty at RCC, and (2) Taught a course in a new generation of learning classroom and a traditional classroom (old generation of learning).

The participants were selected to suit the investigated issue since the investigator believed they provided the best information of the phenomenon. Table 4.01 shows the number of Millennial students and faculty who participated in a focus group or interview. There were a total of 47 individuals.

Table 4.01: Total Number of Participants

Total Number of Participants			
Participants	**Focus Group**	**Interview**	**Total**
Millennial Students (18 to 24 years of age)	15	11	26
Faculty	10	11	21
Total	25	22	47

Millennial students and faculty participated in separate focus groups. The participants were asked to describe their perceptions of the new generation of learning

environment. Each thought was written on a 4 X 6 index card and taped to a designated section of a wall. The participants were asked to collectively categorize the index cards in to themes (also known as affinities). Affinities produced by the focus groups were used to create the interview protocol, which were used for the individual Millennial students and faculty interviews. Individuals who participated in the focus group did not participate in the interviews. These interviews added depth to the affinity descriptions and provided detailed information on affinity relationships. All interviews were recorded, transcribed, and analyzed. Axial Coding and Theoretical Coding were created by the text from the individual interviews. The following section describes the results from the Millennial students.

Millennial Students

Axial Coding Summary – Research Question 1

The Millennial students identified seven affinities (themes) from the focus groups: Technology, Appearance, Climate, Teaching Style, Learning Environment, Emotions, and Group Assignments. The Millennial students who participated in the interviews were asked to discuss the affinities. Next, all interviews were transcribed by the investigator to analyze the text through axial coding, which are specific examples of discourse that are associated with an affinity. Once all interviews had been coded, the data from the interviews was summarized to create a composite of the individuals' experience with the phenomenon. Axial data was transferred from each Individual Interview Axial Code Table to a Combined Interview Axial Code Table. By combining all interviews into one table, the investigator created a database for the entire set of respondents containing all

axial codes for all affinities, with each code containing a reference to the transcript and line numbers that produced the code.

The investigator next examined all quotes for each separate affinity. The quotes for a particular affinity were organized into sub-groups. These subgroups contained quotes that addressed a common theme describing that affinity. Multiple quotes were then combined to develop a composite quote. The following section is a composite description of the seven affinities based on quotes obtained from all student interviews. This section addressed research question number one: What are the perceptions of a new generation of learning classrooms by Millennial students?

Technology.

The term "Technology" referred to the laptops that were available to students in the classroom. Millennial students discussed what it means to use laptops for course assignments, collaborate with students, be computer literate, and have technology physically restricted. Eight sub affinities resulted from the major affinity of Technology. The sub affinities were: classrooms were advanced, amount of technology, online research, computer reliant, interaction, a need for more laptops, computer cords, and technology illiterate.

These classrooms are the best inventions. Millennial students expressed the new generation of learning *classrooms were advanced* in comparison to the traditional environments. "It is amazing for a community college to have classrooms that are technologically advanced. I went to another college campus to look around, and our classrooms put them to shame. I love it. I think these classrooms are the best inventions

they have made. The classrooms are appropriate for the new age of teaching and technology. It is very advanced. This campus is advancing at an appropriate level. You don't see that very often at other campuses. These classrooms are right on track on what we need. There is the right amount of technology in the classroom. If it goes any farther, then the college may be pushing it a little. I don't know how I would feel about PDA's being passed out as part of instruction. That would be weird. It would be prone to abuse. I would be thinking what's going on in here. It would be over the top. Right now, there is a nice mix of the traditional teaching and keeping up with the times. My learning environment is more conducive to the new generation of learning classroom than the traditional classroom."

These classrooms are about technology. Millennial students noticed the *amount of technology* as the main difference between a new generation of learning classroom and traditional classroom. "There is a jump in technology in comparison to the traditional classrooms. There is tons of technology. There are computers everywhere. Everyone noticed that when we first went into these classrooms. These rooms are about technology. This campus hires people who know the basics like the computer, Internet, and email. I've learned so much about technology here. I'm more computer savvy now then what I use to when I went to another community college. This is a technology driven campus."

If you need more information on a certain topic, then it is easy to quickly look up the information online. Millennial students find they could conduct *online research* in the class. "I can use the computer to type my notes from the lecture instead of writing it down on paper. It is nice to have the laptop while the teacher is going through the lesson instead of watching what they are doing and then practice it later. You don't have

to move around or look for one or use someone else's. It helps to have it right there when the instructor asks you to research something. If we didn't have the laptops, then it would be frustrating especially if we have a quick problem you have to answer. It will be very difficult. Since the laptop is connected to the professor's printer, I can print my notes in class. At times, there is no paper in the printer, so we'll use notebook paper. If you don't understand the work, or if you need more information on a certain topic, then it is easy to quickly look up the information online. I can paste it on to my notes. A lot of the teachers have resorted to using Web sites instead of students looking for information in books. We don't have to go to the computer lab to use the computers. We can do the research in the classroom. I can also do my homework in class because it requires specific software. I don't have to download the software at home. You already have it on the class laptop. It's convenient to have the laptop. The technology is great."

I'm dependent on the computer and gadgets. Millennial students are *computer reliant* for their every day life. "I love the idea that there are laptops in the classroom. I do everything on my computer. I'm dependent on the computer and gadgets. I use it all the time. Sometimes I'll bring my own laptop. I need my computer because it has software that the laptops in the classroom don't have. Technology is a must. We live our life on the Internet. I google a lot, but it has nothing to do with the class. You should see my bed room. I have a printer, two routers, a laptop, a second monitor, Tivo, TV, and stereo. I have another laptop that I can log into. I have an iPod which is two years old, two MP3 players, and satellite radio. I am technology literate. Gadgets are important to my generation. A lot of my friends say that they could not live without their iPod, cell phone, and all these other gadgets. I would feel vulnerable without it."

There is a lot more interaction. Millennial students expressed that smaller computers increases *interaction* among students. "We had desktops before we had the laptops. It was hard to get to know people in the classroom. We couldn't see our peers with the bulky desktops in the way. They removed the desktops and replaced them with laptops. Now, there is a lot more interaction in the class, which is important. You see who is in the class."

One laptop per table is frustrating. Millennial students expressed *a need for laptops* for each student. "It's fair when everyone has their laptops. Not all new generation of learning classrooms have the four laptops for each table. Some of them only have one laptop per table. Everybody at the table wants to use a laptop. One laptop per table is frustrating and discouraging. Someone will be writing notes while the other student types. That's not fair. It gives the student a chance of finishing their notes faster. All the classroom rooms should have four laptops per table. If not, they should take the laptops away."

There needs to be a better way with all the wires. Millennial students find the *computer cords* restricting. "I like having the laptops there except the jumble of cords in the middle of the table makes it difficult to move the laptop closer to you. It could be very difficult. It is a huge tangle. The laptops can't be opened without fighting for them. The power cords and the security cable are all tangled. It's impossible to separate the laptops from each other. Everybody's laptop has to be in the absolute center of the table. You have to lean across to get it. It makes it a little harder to use. I have pushed it out of the way a couple of times because it is so jumbled. I like having the laptops on the desk,

but there needs to be a better way with all the wires. It would be good if the table had a little spot underneath to hold the laptops when they are not in use. That would be cool."

Some professors don't know how to use the computer. Millennial students become discouraged when instructors are *technology illiterate*. "Not all instructors utilize the technology that is offered to them in the classroom. They are not using the computers. I had one professor who didn't know how to use PowerPoint. Some professors don't know how to use the computer. They ask the students 'Do you know how to do this.' We say 'You are the professor. You're supposed to be teaching us.' I had a professor who didn't know how to log on to Blackboard. Everybody in the classrooms was like, 'Are you going to put this stuff on Blackboard.' He would say, 'I'm still getting the hang of Blackboard and I'm still learning.' Some of the older professors don't like the laptops at all. They don't know what the point is. They say that if they got taught without them that they are sure that everyone else can. They want us to do the same thing they did when they grew up. A lot has changed. I don't think they can relate to us. The professors should be pressured to learn about technology. They need to keep updating and updating their knowledge. I tend to take instructors who don't care if you use a laptop or not."

Appearance.

The affinity labeled "Appearance" referred to the classroom layout. Millennial students discussed how the appearance of a new learning environment impacts their learning in comparison to a traditional classroom environment. Eleven sub affinities resulted from the major affinity Appearance. The sub affinities were: prepared to learn,

conscious on helping their peers, new technology and furniture, lighting system, writing space, wall color, chairs, table space, tables were unstable, computer cords, and traditional classroom.

The main purpose for these classrooms is to get people to work together. Millennial students were *prepared to learn* in this learning environment. "When you enter this new environment you are ready to work and learn. You feel that you are actually going to do something instead of just watch the instructor. It is a good way to get people together because at the end of the day you are going to work with people at your job. The main purpose for these classrooms is to get people to work together."

It makes you more aware of your fellow students. Millennial students are more *conscious on helping their peers*. "The classroom is set up makes you more aware of your fellow students instead of the instructor. When you are in group setting environment you have to look around. If the person next to me has a question or a problem, I can't just ignore it. I'm more prone to turn to them, and tell them how to do it, and what's going on in the classroom. A lot of times when I'm in a traditional classroom I don't care who sits behind me. I don't care who's got what going on as long as I understand the material, and I'm listening to the instructor, then that's fine."

Technology and appearance attracts me. Millennial students stressed that *new technology and furniture* draws their interest in the classroom. "If technology is improving and your furniture is too, then people will notice. Classrooms need new computers, furniture, and tables. If you have outdated stuff in the classroom, it's going to be a joke. What's the point in coming to class? It doesn't make sense to attend. The classrooms need to be up to par with other college campuses. Technology changes all the

time. Everybody wants the sleek new look of everything. Everyone wants the new laptops that flip up and have the screen where you actually write on it with a pen. Everyone wants the newest thing out. Technology and appearance attracts me, and it goes hand in hand."

The lighting makes the classroom more appealing. Millennial students enjoyed the *lighting system* in the classroom. "It makes me feel good. It's a nice lighting system. You can change the amount of lighting. Some of the instructors play around with it. Most of the time, the instructors will have the lights off to show videos and projections. The lighting makes classrooms more appealing."

The white boards are convenient. Millennial students appreciated the *writing space* on the white boards. "The white boards on the wall are great. I prefer these over chalkboard. The instructor can write as much on the white board without taking the time to erase. I like how they extend to the ceiling, so you can get the projection of the PowerPoint. The white boards on the wall are convenient. All my instructors use it. It's really nice and a good tool to have in class. I like the moveable white boards. There are students who can't see what is being written on the white board that is on the wall. The teacher will grab the mobile white board place it where the students can see. All of us can get up and write on it, too. You can write something on one side. Then, you can turn it around and write something on the other side. If we are having a group presentation, we can move it around the room and use it to our advantage. We can use it for notes as a group or as a person. The mobile white boards are fun."

The colors make the classroom open and inviting. The Millennial students believed that *wall color* makes a difference in their learning. "The colors on the wall give

the classroom a relaxed feeling. It is nice. The colors are earthy tones. The walls are red, green, yellow, and blue. You have that one accent wall. It's pretty. It is easy on the eyes. You go in there and you are like 'ah.' The colors make the classroom open and inviting. Otherwise it would be the same boring traditional classroom with a gray, white, and bleak hospital appearance. It is not inviting. You will not want to be in the room for long. Color makes a difference."

The chairs are supportive for your back. Millennial students stated that the *chairs* add comfort to the class. "The chairs are my favorite. They are comfortable as opposed to the straight back, regular, traditional desks that we use to have. The chairs have wheels which make it easy to move them and glide. Maybe that is adding on to our laziness. The chairs are supportive for your back. They swivel and turn. Everybody fights for the one with the arm rest. They are really nice chairs. If you have the other ones in the traditional classroom you are always sitting straight. It makes you tired. You want to leave already because they are not comfortable. They invest in chairs."

Your body is molded to your spot on the table. Millennial students appreciated the amount of *table space* they had for learning. "I like the design of the table. The tables are square in shape with curvy sides. It's on wheels, so you can move them around. They are not big and heavy tables that have been around since the 1980's. You get the feeling that it is more accommodating. The tables make it easier for people to work together. You body is molded to your spot on the table. Four people can sit at that table. The tables are large enough. Everyone has their own space to work. I prefer the tables to desks. Even if you share with people you have more space than a little desk. They are pretty. They are nice to look at it."

The table seems like it's going to come apart. Some Millennial students believed that the *tables were unstable*. "If you lean on them, they will sag. It is not stable. There is not enough leg support. If you barely touching it, the table seems like it's going to come apart. They are press boards. It needs to be built with harder wood since they are moved around a lot. They get so much use. I don't care for the tables. They are a little annoying."

The cords bulk on top of the table. Millennial students find the *computer cords* a distraction. "There are holes in the middle of the table for security and power cords. It comes through the table to connect to the laptop. I don't like that. The cords bulk on top of the table. It looks messy. You try to stack the laptops on top of each other, but the cords are still bulging everywhere. That makes it difficult. There are sacks underneath the tables. I really didn't know what they were for because it really doesn't hold the cords. They are empty."

Students prefer the new learning environments rather than the traditional classroom. The *traditional classroom* inconveniences Millennial students. "These new learning environments are nothing like the uncomfortable traditional classrooms. The traditional classrooms are small in size and have a lot of people. You are like a sardine when you are in that classroom. It's crowded when you want to walk around. I don't like it. There are no laptops. There are tiny tables. You have a basket underneath the chair for your belongings. Students prefer the new learning environments rather than the traditional classroom."

Climate.

The affinity named "Climate" referred to the temperature in the new learning environment. Millennial students discussed what it meant for extreme temperature to impact their learning environment. No sub affinities emerged in this affinity.

It seems hot and stuffy or it's freezing. *Classroom temperature* impacted student learning. "We have a lot of problems with the cooling system. The temperature of the room varies. Sometimes it is one extreme to the other. I don't know what's wrong with it. It seems hot and stuffy or it's freezing. You don't want to bring a sweater because it is starting to get hot outside. That would also be annoying. It makes it harder to concentrate and learn in the classroom. Last semester during our final we changed rooms. It was unbearable freezing cold during the final. Nobody could concentrate. The teacher moved us to another room where we could finish our final. Today, when I had class, it was warm. I haven't found a happy medium in those classrooms. It's not comfortable."

Teaching Style.

The affinity called "Teaching Style" referred to the instructor's method of implementing instruction in the classroom. Students discussed how the new learning environment influences teaching style. Eight sub affinities resulted from this affinity. The sub affinities were: adjust to classroom environment, technology illiterate, defined roles, approachable instructors, responsible for learning, Myspace, laptops for recreation, and lectures.

Their teaching style is a new age of teaching. Some Millennial students continued to believe that some instructors *adjust to the classroom environment*. "The

professors are up with technology. They all know what is going on. They are young and like to teach. The instructors adjust to the environment. A lot of instructors have modified their teaching style. They try to create a welcoming environment. I've been lucky with my teachers. The teachers try to create an interactive class discussion to get us to talk or we will break out into groups. Their teaching style is a new age of teaching instead of getting up in the front of the classroom and lecturing. They do a creative job to force you to have some input. Everyone has to say something. This new teaching method has more involvement with the students. The professors know more about the students. My instructors who teach in a new generation of learning are very adamant about class discussion and diversity. They prefer to be asked questions by the students. They are compatible, comfortable, and prepared to teach in this new learning environment. The instructors are more enthusiastic in this learning environment. They have more liberty to do group projects and research in the class in comparison to the traditional classroom where it is a drag. They are comfortable with the laptops. They will open the computer and log on and go to a Web site and research. Every instructor that I've had has encouraged students to use technology. One teacher went from a traditional classroom to the new generation of learning classroom. She used everything around her. She did well. I don't think the teachers need preparation."

Instructors who don't play around with the technology will not use it in the classroom. Millennial students believed instructors who are *technology illiterate* will not incorporate technology in the classroom. "When the new generation of learning classrooms first opened, I was one of the first students in the class. The teacher did not care about the laptops and projector. She wanted to teach out of the book and write on

the white board. She wanted all the attention to just that. She was not prepared for it. She set up a Blackboard account. It was the most confusing thing. Everybody dropped the class. That say a lot about the instructor's preparation in technology and teaching in a new age environment. There are instructors who are still stuck teaching in the past. The teaching style is archaic compared to what is available and what kind of method they have currently. They have their old teaching methods that separate the teacher from the student. The teaching style doesn't reflect the new generation of learning environment. They don't coincide. She prefers that we always write and use no technology. There are no slides, PowerPoint's, or things you can bring in to display things. She uses teaching styles from the 1970s and 2010 is almost here. My professor might be in her 50s. Instructors who don't play around with the technology will not use it in the classroom. I try to stay away from instructors who will not embrace technology. If you have one professor that is only stuck on one style and when your environment changes or your technology improves and the professor remains the same, there is not really much learning going on. The instructors and students are not meeting. I don't think the instructors understand us. There are two different time periods in the classroom. It could be a generational conflict. It can be a misunderstanding. They are not going to change. They will not put as much effort into incorporating technology into their teaching method. Their teaching style is going to be their teaching style."

The students are on one level, and the professor on another. Millennial students shared that *defined roles* in the classroom go against the nature of the new generation of learning. "My instructor's method of teaching is that she is the professor, and we are the student. She knows and we don't know. That needs to change. My professor keeps on

going on and on and doesn't break to ask if we understand. The students are on one level, and the professor on another. If you put a hard nosed instructor in these new learning environments, they are not going to be a different teacher. I don't think the new generation of learning influences the teaching style. The teacher is a teacher. They don't care what room it is. If it is outside, they will teach the same way. Just give them a board and they will do the same thing. You can take a teacher out of the traditional learning environment and put them in a new environment, and they will still teach the same way. You are who you are."

Teachers are not seen as the authoritative person in the classroom. Millennial students expressed there are *approachable instructors* in the classroom. "In the traditional classroom, the instructor is the boss. They don't want the students to teach. We have to listen to the person. They take the role as a lecturer. Now, the instructors are not seen as the authoritative person in the classroom. They are more of a mentor. The students work at their pace. The teacher works at the student's pace. With these new classrooms the instructors get the chance to walk around and work with you when you have problems. They always ask how we are doing with our assignments. I like that a lot. Students don't want that top down approach to begin with like 'I know what needs to be learned.' We have a lot less respect for authority in that aspect. We have an attitude of teach me what you know, but I'll keep interrupting. This is how my generation feels about it. They teach valuable lessons like how to interact with your peers and how to formulate your own ideas. You have the technology and the design of the room that allows that. They can be more laid back and teach other things aside from the lecture when in a new generation of learning environment."

It's up to us to learn from one another. Millennial students found they must be *responsible for learning*. "Instructors don't teach as much in the new generation of learning classrooms. Since we do a lot of group projects, it's up to us to learn from one another and research information online. If the instructor uses specific software, then the computer explains how to do certain problems. At times I won't understand a question on a software program, so I go to the examples section and learn how my answer was wrong. Instructors are there if students need help."

Some instructors will Myspace everyone. The Millennial students had mixed feelings on instructors who have *Myspace* Web sites. "Some instructors will Myspace everyone. She'll want us to send a message to her Myspace account. She answers her messages on Myspace faster than her school email account. She'll do surveys on herself. We get to know more about her. Sometimes they try too hard to be cool and hip with technology. I don't know which is weirder. The ones who say 'my who' and 'what's that' or the ones who say they have a site on there. I don't think you can win that battle as an instructor. There is will always be a generational gap between the faculty and students. You're weird if you are trying to be in with it and you're weird if you are not."

The teacher needs to determine if we are going to use laptops or not. Millennial students found it disrespectful when other students used the *laptops for recreation* during class time. "There are students who are always on the laptop. It becomes frustrating when you don't need it and people are on the laptop and doing something else rather than the course work. The teacher needs to determine if we are going to use laptops or not and be strict with that. We don't need to use the laptops all the time. We should pile them up on a certain side of the table and nobody use them."

A traditional classroom is the environment for an instructor who always lectures. The Millennial students believed that *lectures* are better suited for traditional classrooms. "Not all classrooms should be a new generation of learning. There are some classrooms that don't work well in a group environment. This depends on the teacher's method of instruction. If the instructor is going to have students research and work together, then a new generation of learning is great for that type of learning. If you are taking notes all day from a lecture, then there is no need for a new generation of learning environment. There are classes that don't fit in that environment. A traditional classroom is the environment for an instructor who always lectures."

Learning Environment.

The affinity named "Learning Environment" referred to how the new classroom setting impacts student learning with their peers. Students discussed what it meant to work in groups and have distractions in the classroom. Six sub affinities resulted: teaching each other, inductive learning, competition, socializing, wasted class time, and multitasking.

It is a team oriented environment. The Millennial students in this study found relief in *teaching each other*. "Having a person sit beside you at the table who knows what they are doing in class is good when you are confused. You can ask that student for help or for the answer instead of having to raise up your hand and disrupt 30 people. You don't need the professor as much when you have the group with you. It is a team oriented environment."

I like to learn through discovery. The Millennial students preferred *inductive learning* in the classroom. "The instructor let students draw their own conclusion rather then the instructor giving us the information. My teacher will ask us a question on what we think. At first, everyone gets really quiet. He pulls us outside of the box. I like to learn through discovery. I am the kind of person who likes to learn by sight too. I want the assignment, and I want to figure it out. I also like it when a teacher helps you learn."

Students like to brag about having the correct answer. *Competition* was present within the groups. "There is a competitive nature within the groups. You are sitting with students at a table together. If you get a test or an assignment you look at the other people. You'll look to see who is done first, who will get the answer right, who got the highest grade, and the lowest grade within the group. Everybody in the group will ask what did you get and compare answers. A lot of times students compete for who can find information quickly. Students like to brag about having the correct answer. You want to do outdo your neighbor. You want to show them that you can do the work."

Students tend to talk more in a new generation of learning environment. Some Millennial students became distracted with the *socializing* that occurred in the classroom. "The down side of the new generation of learning environment is that when sometimes you are in group,s there is too much talking among the students. They are all friends. People are talking about what they are looking at on the Internet. It is hard to pay attention and listen for the person who is trying to learn. You have to hear over all the chatting that is going on. When you're in groups, it's more social. The instructor has to constantly tell us to be quiet because there are people trying to learn. Students tend to talk more in a new generation of learning environment. The students have a hard time

paying attention. They need to listen, take notes, and tell their peers to be quiet. There is no space for talking. You are there for one reason. You are there because you have a goal. It's challenging. Sometimes you can hear the talking in the next classroom. They tend to talk excessively loud. There are teachers that let them get out of hand too much. The walls are probably too thin because the noise echoes through. If you go to a night class, you're probably not going to have a lot of that stuff because there are older students who are not going to be focused on what they did this weekend."

The laptops can be a distraction. The Millennial students acknowledged that their peers *wasted class time* on the laptops. "When you get people in a group they don't pay attention. A lot of instructors will tell us to close the laptops in the classroom because we are not using them right now. The other teachers will talk and give instructions while the students are on Myspace or checking their email. Sometimes they won't pay attention. That becomes annoying. The instructor will say 'I need your attention.' The students need to understand that they should not use the laptops while the instructor teaches. You are here for one reason. Don't be here if you're wasting time. It's disrespectful to use the laptop if it has nothing to do with the lesson. That's why it would be nice to not have the laptops on the table. Instead, have it underneath the table or a place where the student's don't have access to it unless it is necessary. It's right there. You have access. You can use it when you want. The laptops can be a distraction."

I'll search the Web and write a paper at the same time. The Millennial students talked about *multitasking* during class time. "I would say that half of the class is multitasking in any given point of time. Some of it is good and bad. Some are actually following along with the instructor. Some are on Myspace. I'm an expert at

multitasking. I do feel bad anytime I multitask in the classroom. I can type up an email, read a class assignment, be on Blackboard, and be on Myspace and instant messenger at the same time. I text message in class sometimes when the teacher bores me or if I don't understand what's going on. I can text message without looking at my phone. You memorize the letters that are associated with the numbers. You hide your hand while you do it. If my teacher catches me, he is going to think that I'm goofing off and not paying attention. If I were in his place, I would think that too. Depending on the instructor, I'll search the Web and write a paper at the same time. I'll have an average of 15 windows open. You no longer are required to listen to the lecture and teacher and do everything the teacher says. You don't focus as much. You pay less attention to the teacher. They will try to get our attention. I don't think that the teacher would agree with the fragmentized instruction I and my peers receive. I can understand the instructor when I multitask. I can rephrase what they say by a word or two. I get the gist of it. I can take notes while I'm chatting."

Emotions.

The affinity labeled "Emotions" referred to how the new classrooms made students feel. Students discussed the positive and negative experiences that influenced their outlook on the new generation of learning environment. Nine sub affinities resulted: optimism, enthusiasm, relieves stress, comfort, classroom environment enjoyable, Internet access, student attitudes, concentration, and lack of laptops frustrates students.

I'm a big cheerleader for the new generation of learning environment. The Millennial students shared their *optimism* with the new learning appearance. "I love to

talk about these classrooms. It would be great if all classrooms were new generation of learning classrooms. To go from how classrooms were before is really depressing. Other schools talk about that they have certain types of programs. I tell them, "'Our college has new classroom." Then they say, 'We don't have that.' I brag about the new generation of learning environment. There is a lot of competitive talking with other [students from] campuses. I tell them that we have our own laptops in class. Then, there will be students who come from other colleges. They say, 'Wow I love this place.' I'm a big cheerleader for the new generation of learning classrooms. I have nothing but good things to say. It's nice to have this investment in the classroom."

Students get excited to come to class. Millennial students expressed their *enthusiasm* to get to class. "It would be great and wonderful if all classroom were new generation of learning. The new generation of learning classrooms really have an impact on my learning. I hear this from a lot of students too. They want all other colleges to have classrooms like these. It does make a difference. Students get excited to come to class. It is a nice classroom. You get to talk to students. You come with the idea that you are going to talk to others and talk about things like movies. It changes the way you feel about going to class."

No stress. The Millennial students helped each other to *relieve stress*. "There is no stress in getting something wrong. If the professor asks you a question and you don't know the answer, then it can be referred to your group members. You are not sitting by yourself. You are surrounded by a bunch of students. It's fun. You have someone to talk to. You talk amongst yourselves and help each other. The spotlight won't be on you. It's

like you're one with each other. We support and lean on each other. You're not by yourself in this environment. It's a secure environment."

We are not there to just watch the instructor. The Millennial students found *comfort* in a new learning environment. "There is a different feel between a new generation of learning classroom and a traditional classroom. For instance, the traditional classroom is very boring. The tables are lined up beside each other in a traditional classroom. There is one person sitting on your left and right. I feel constrained. You are looking one way. We are all seated to watch the instructor teach. It doesn't feel good. You can't talk to your neighbor. You don't feel comfortable speaking up in class. In the new generation of learning classroom, we are not there to just watch the instructor. We are there to work together."

I am motivated. The Millennial students found the *classroom environment enjoyable*. "I don't feel like I'm in a community college. The new generation of learning classrooms are welcoming, relaxing, enjoyable, and calming. I'm motivated because I have many tools around me to help answer questions and do your assignments. It is great. The teacher makes it comfortable. My instructor is great which makes the new generation of learning classrooms perfect. I like it."

The new generation of learning classrooms makes it convenient for the student. Millennial students appreciated the *Internet access* to work on assignments. "The new generation of learning classroom makes it easier to complete work assignments. If the teacher wants us to research something, then it is easy to open up the laptop and do it instead of going home to use the computer. Some people don't even have access to the

Internet at home. They have to do it in the computer lab. The new generation of learning classrooms makes it convenient for the student."

You feel ready to learn. Millennial *students' attitudes* were changed by the classroom colors. "The new generation of learning classrooms has an effect on me, especially when I see the different colors on the walls and shapes of the furniture. The colors are greens and grays. It is professional. If you are in a bad mood, then it can help ease you. You feel ready to learn."

It makes me upset. You are interrupted by students. Some Millennial students found *concentration* in class a challenge. "There are students who use the computers to check their emails when they are not suppose to during class. That makes me upset. I'm doing all this work, and they don't help me. I'll be frustrated. I want them to stop typing and talking. It makes it hard for me to listen and pay attention to the teacher. You pay to learn, and the students are typing. You're not getting your full money's worth. You are interrupted by these students. It can get disruptive. I'm not going to lie. You can slack off with the computer right in front of you."

One laptop per table bothers me. A *lack of laptops frustrates students.* "If there are not enough laptops for everybody, then it becomes annoying. You get frustrated. There needs to be a laptop for each student. If there isn't, then it becomes stressful, frustrating and unfair. One person can hog the laptop. Sometimes if you want to do work on it, you can't. There is that person using it to look at their Myspace, email or pictures. Some people come late to class and leave early because they need a computer. If there is a homework assignment that day, then you can insert your USB flash drive in the laptop and print it out. This would prevent students from leaving the class to just print an

assignment at the library. One laptop per table bothers me. It would be more negative for the learning environment when it comes to the one laptop. If there are four laptops then it is positive. It is a good thing. Everyone can research something different even though everyone is sitting together."

Group Assignments.

The affinity "Group Assignments" referred to students working together as teams in the new generation of learning classroom. Students discussed what group work meant in their classroom environment. Seven sub affinities resulted: tables, work load, communication, friendships, see one another, workload unequally balanced, and lack laptops.

Set up for group work. The Millennial students found the *tables* made group work easier. "We don't have to bother moving the tables around since the desks are already set up for a group work. The tables are flexible, light, and easy to move. The environment sends a message to us saying it's okay to work together. You can still do group assignments in a traditional classroom, but everyone complains. You have to get up, move your stuff, move the tables, and put them together. It's inconvenient. It's difficult to move around the room."

It's a collaborative environment. The Millennial students felt encouraged to divide *work load*. "Group work is huge in the new generation of learning classrooms. We work together as a team because everyone has to. I get encouraged to do group assignments. Everybody has to work together. You brainstorm to find that one answer. The laptops make it easy to look up information when we begin an assignment. It's a

collaborative environment. Someone can type. Someone can research online. Some else can surf the net. Someone is always doing something in the group. You can work on the same thing and work together while everyone has their own laptop. It's convenient to have the laptops on the desk. "

Students open up. The Millennial students appreciated the open *communication* in a group setting. "There are a lot of people that I've had in classes that don't usually raise their hands. When we are in a group, students open up a lot more and ask questions. It allows you to talk about things you wouldn't say. If you don't know what's going on in the classroom, then someone else in the group will know and tell you. You can rely on each other. Groups are a lot more effective this way. There are a lot of heated discussions."

I get to know my classmates. The Millennial students reported having created more *friendships* in the class. "The layout of the classroom lets me know my classmates better. There is always a group of students sitting next to you. You are always looking at each other because of the seat arrangement. You feel more of a close knit to the people sitting in front of you. I am more prone to talk to my peers in this new learning environment rather than sitting in rows in a traditional classroom. You can roll around in your chair and talk to other students at other tables. You get to talk about the other instructors and campus events. There is a lot of social interaction."

Now, we can see each other. The laptops allowed the Millennial students to *see one another* while working on the laptop. "Group assignments work very well in the new generation of learning classrooms compared to the other classrooms that have desktops. The desktops in traditional classrooms made it difficult to see your classmates since it

was always in the way. It was hard to have interaction. The laptops are nice. Now we can see each other. Everyone should have a laptop in the classroom."

Some people don't do the work. Millennial students responded that the *workload was unequally balanced* among the group. "When it comes down to group work sometimes the students don't know how to work together. Some people in a group don't do the work. Most of the time students are on Myspace rather than doing the assignment or working together. I prefer to work individually because you don't have to rely on anyone. Sometimes you want to work by yourself. A lot of times your participation in the group isn't being acknowledged. There is not a balance unless if you are getting graded individually. I prefer lecture."

It is difficult to work with one computer. A *lack of laptops* discourages group work. "In other classrooms there is only one computer, so the group has to share that one computer. We would have to split the work assignments. One person would use the laptop, another person records the information, and the others do research in the library. People lose interest because they aren't typing. It is difficult to work with one computer."

Theoretical Coding Summary - Research Question 2

After the Axial Coding had been completed, the investigator conducted a Theoretical Coding analysis of the text. The purpose of theoretical coding is to determine the "cause-and-effect relationships (influences) between all the affinities in a system" (Northcutt & McCoy, 2004, p. 149). Thus, the investigator analyzed the second section of each interview transcript in which participants discussed their perspectives on how

each affinity relates to other affinities. A theoretical code database for the entire set of interviews was created. Within the database, each theoretical code was associated with the specific transcript and line number containing the code. Since individual respondents identified relationships differently, relationship frequencies were tallied and reconciled using the Pareto Protocol (Northcutt & McCoy, 2004). The relationship with the highest frequency was documented in the Interrelationship Diagram (IRD) and represented in the System Influence Diagram (SID). This section addressed research question number two: How do Millennial students relate to a new generation of learning classrooms?

Pareto Protocol.

According to Northcutt and McCoy (2004), the Pareto Protocol is a method that is utilized to document the degree of consensus when participants disagree on the direction of a relationship. The investigator counted the number of respondents who identified the relationship in a particular direction and placed the tally in the Theoretical Code Frequency Table. For example, $1 \rightarrow 2 = 4$ and $1 \leftarrow 2 = 6$, which is shown in Table 4.02. The same was done for all respondents who identified the relationship in the opposite direction.

Table 4.02: Student Combined Interview Theoretical Code Frequency Table

Affinity Name
1. Group Assignments
2. Emotions
3. Technology
4. Appearance
5. Climate
6. Teaching Style
7. Learning Environment

Millennial Students Combined Interview Theoretical Code Frequency Table

Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency
1 → 2	4	2 → 4	2	3 → 7	10
1 ← 2	6	2 ← 4	8	3 ← 7	0
1 → 3	0	2 → 5	0	4 → 5	2
1 ← 3	9	2 ← 5	9	4 ← 5	3
1 → 4	1	2 → 6	1	4 → 6	5
1 ← 4	7	2 ← 6	9	4 ← 6	4
1 → 5	1	2 → 7	1	4 → 7	7
1 ← 5	4	2 ← 7	9	4 ← 7	1
1 → 6	1	3 → 4	6	5 → 6	4
1 ← 6	9	3 ← 4	4	5 ← 6	2
1 → 7	1	3 → 5	5	5 → 7	10
1 ← 7	9	3 ← 5	1	5 ← 7	1
2 → 3	3	3 → 6	10	6 → 7	9
2 ← 3	5	3 ← 6	1	6 ← 7	1

The results of the frequency tallies were transferred into the Pareto and Power Analysis Table as shown in Table 4.03.

Table 4.03: Millennial Students: Affinities in Descending Order of Frequency with Pareto and Power Analysis

Millennial Students: Affinities in Descending Order of Frequency with Pareto and Power Analysis					
Affinity Pair Relationship	**Frequency Sorted (Descending)**	**Cumulative Frequency**	**Cumulative Percent (Relation)**	**Cumulative Percent (Frequency)**	**Power**
3 > 6	10	10	2.4	5.4	3.0
3 > 7	10	20	4.8	10.8	6.0
5 > 7	10	30	7.1	16.2	9.1
1 < 3	9	39	9.5	21.1	11.6
1 < 6	9	48	11.9	25.9	14.0
1 < 7	9	57	14.3	30.8	16.5
2 < 5	9	66	16.7	35.7	19.0
2 < 6	9	75	19.0	40.5	21.5
2 < 7	9	84	21.4	45.4	24.0
6 > 7	9	93	23.8	50.3	26.5
2 < 4	8	101	26.2	54.6	28.4
1 < 4	7	108	28.6	58.4	29.8
4 > 7	7	115	31.0	62.2	31.2
1 < 2	6	121	33.3	65.4	32.1
3 > 4	6	127	35.7	68.6	32.9
2 < 3	5	132	38.1	71.4	33.3
3 > 5	5	137	40.5	74.1	33.6
4 > 6	5	142	42.9	76.8	33.9
1 > 2	4	146	45.2	78.9	33.7
1 < 5	4	150	47.6	81.1	33.5
3 < 4	4	154	50.0	83.2	33.2
4 < 6	4	158	52.4	85.4	33.0
5 > 6	4	162	54.8	87.6	32.8

2 > 3	3	165	57.1	89.2	32.0
4 < 5	3	168	59.5	90.8	31.3
2 > 4	2	170	61.9	91.9	30.0
4 > 5	2	172	64.3	93.0	28.7
5 < 6	2	174	66.7	94.1	27.4
1 > 4	1	175	69.0	94.6	25.5
1 > 5	1	176	71.4	95.1	23.7
1 > 6	1	177	73.8	95.7	21.9
1 > 7	1	178	76.2	96.2	20.0
2 > 6	1	179	78.6	96.8	18.2
2 > 7	1	180	81.0	97.3	16.3
3 < 5	1	181	83.3	97.8	14.5
3 < 6	1	182	85.7	98.4	12.7
4 < 7	1	183	88.1	98.9	10.8
5 < 7	1	184	90.5	99.5	9.0
6 < 7	1	185	92.9	100.0	7.1
1 > 3	0	185	95.2	100.0	4.8
2 > 5	0	185	97.6	100.0	2.4
3 < 7	0	185	100.0	100.0	0.0
Total Frequency	**185**	**Equal Total Frequency**	**Equals 100%**	**Equals 100%**	**Power = Columns E-D**

The investigator examined the Cumulative Percent - Frequency. Northcutt and McCoy (2004) recommend that when the Cumulative Percent reached 80%, this would be the cut off for acceptable affinity relationships to be used to create an SID. Since Table 4.03 shows a frequency tie of "4" under the Frequency Sorted column in the 80% range, the cut off for the affinities in this study was 87.6%. Thus, all affinities and their frequencies that had at a Cumulative Percent – Frequency at and below an 87.6% were

documented in the next step of the Pareto Protocol. This is shown in the Conflict Table (Table 4:04). The results were sorted by affinity pair relationship ascending order.

Table 4.04: Millennial Students: Conflict Table by Affinity Pair Relationship

Millennial Students: Conflict Table by Affinity Pair Relationship		
Affinity Pair Relationship	Frequency	Conflict
1 < 2	6	x
1 > 2	4	x
1 < 3	9	
1 < 4	7	
1 < 5	4	
1 < 6	9	
1 < 7	9	
2 < 3	5	
2 < 4	8	
2 < 5	9	
2 < 6	9	
2 < 7	9	
3 > 4	6	x
3 < 4	4	x
3 > 5	5	
3 > 6	10	
3 > 7	10	
4 > 6	5	x
4 < 6	4	x
4 > 7	7	
5 > 6	4	
5 > 7	10	
6 > 7	9	

To examine the affinity pair relationships for conflict, the investigator identified whether the same affinity pairs were present with different influence directions. Table 4:04 shows there was a conflict with the following affinities:

- 1 > 2 and 1 < 2 (1 = Group Assignments; 2 = Emotions)
- 3 > 4 and 3 < 4 (3 = Technology; 4 = Appearance)
- 4 > 6 and 4 < 6 (4 = Appearance; 6 = Teaching Style)

"The Interrelationship Diagram (IRD) allows for only one of two possibilities with respect to these relationships," thus; "a choice must be made" between conflicting pairs (Northcutt and McCoy, 2004, p. 290). To solve the conflict temporarily, Northcutt and McCoy (2004) recommended the affinities with the highest frequency between pairs be used for the IRD. For example, the affinity pair 1 < 2 had a higher frequency (6) in comparison to affinity pair 1 > 2 which had a frequency of 4. Therefore, the investigator used affinity pair 1 < 2. The investigator followed this method for the two remaining conflicts. Thus, 3 > 4 and 4 > 6 as well as all other non conflicting affinities were used to create the IRD. After the IRD was created, the investigator examined the conflicting relationships that were not used and included them in the Uncluttered System Influence Diagram (SID). This is discussed later in this chapter.

Interrelationship Diagram.

To begin rationalizing the system, the investigator used a matrix to examine all relationships in the system. This is known as an Interrelationship Diagram (IRD) as shown in Table 4.05. Then, the IRD was sorted in order of delta as shown in Table 4.06.

Table 4.05: Composite Interview IRD

Tabular IRD										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**OUT**	**IN**	**Δ**
1		←	←	←	←	←	←	0	6	-6
2	↑		←	←	←	←	←	1	5	-4
3	↑	↑		↑	↑	↑	↑	6	0	6
4	↑	↑	←			↑	↑	4	1	3
5	↑	↑	←			↑	↑	4	1	3
6	↑	↑	←	←	←		↑	3	3	0
7	↑	↑	←	←	←	←		2	4	-2

Count the number of up arrows (↑) or *Outs*
Count the number of left arrows (←) or *Ins*
Subtract the number of *Ins* from the *Outs* to determine the (Δ) *Deltas (*Δ = Out- In)

Table 4.06: Composite Interview Sorted IRD

Tabular IRD – Sorted in Descending Order of Δ										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**OUT**	**IN**	**Δ**
3	↑	↑		↑	↑	↑	↑	6	0	6
4	↑	↑	←			↑	↑	4	1	3
5	↑	↑	←			↑	↑	4	1	3
6	↑	↑	←	←	←		↑	3	3	0
7	↑	↑	←	←	←	←		2	4	-2
2	↑		←	←	←	←	←	1	5	-4
1		←	←	←	←	←	←	0	6	-6

The deltas listed in the sorted IRD (Table 4.06) mark the position of the affinities within the system. The highest delta number represents the *primary driver*. An affinity

labeled as a primary driver is described as bing a significant cause that affects many other affinities, but is not affected by others; thus, there are no *Ins*. Other positive deltas represent *secondary drivers*. A secondary driver is identified when there exists both *Outs* and *Ins*, and there are more *Outs* than *Ins*. Deltas (Δ) with negative numbers are outcomes. The *secondary outcome* is identified when more *Ins* than *Outs* exist. Finally, an affinity with no *Outs* is always a *primary outcome*. The primary outcome has a significant affect caused by many of the affinities, but does not affect the others. Table 4.07, the Tentative SID Assignments, shows the initial placement of affinities for the SID.

Table 4.07: Tentative SID Assignments

Tentative SID Assignments		
3	**Primary Driver**	(Technology)
4	**Secondary Driver**	(Appearance)
5	**Secondary Driver**	(Climate)
6	**Circulator / Pivot / ?**	(Teaching Style)
7	**Secondary Outcome**	(Learning Environment)
2	**Secondary Outcome**	(Emotions)
1	**Primary Outcome**	(Group Assignments)

Composite Theoretical Descriptions.

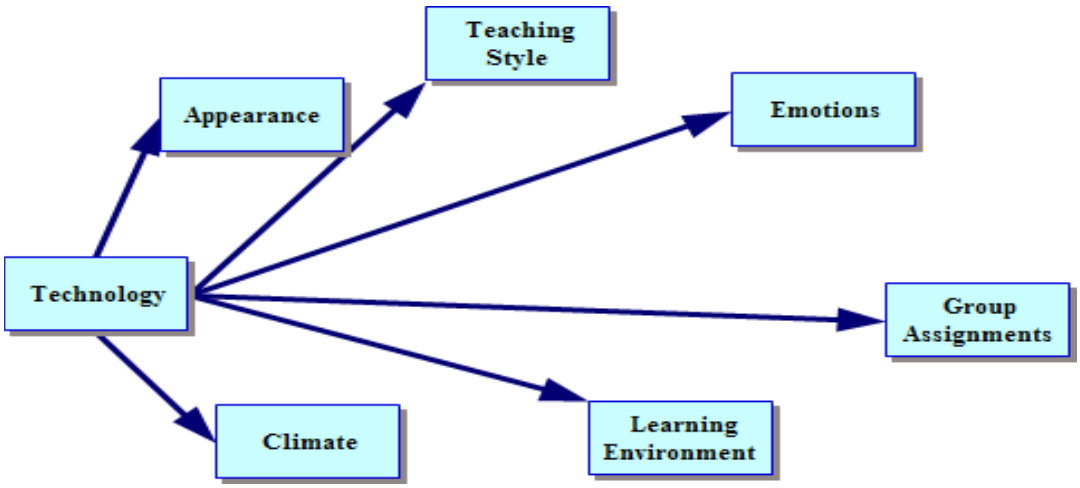
This section provides a description of each relationship represented in the system. These relationship descriptions explain the entire system of drivers and outcomes based on a composite of the student interviews. Theoretical codes describing the link between affinity pairs are interpreted beginning with the affinities with the highest number of

positive deltas (system's primary driver) and proceeding to the affinities with the highest number of negative deltas (system's primary outcome) as represented in Table 4.06 (Composite Interview Sorted IRD). The order of affinities is as follows: Technology, Appearance, Climate, Teaching Style, Learning Environment, Emotions, and Group Assignments.

Technology Influences…

The students believed that Technology had a direct influence on all elements related to the new generation of learning. Thus, Technology was identified as the primary driver in their perception of the new generation of learning classrooms as shown in Illustration 4.03.

Illustration 4.03: Technology



Appearance. "Technology impacts the appearance of the classroom. There are only certain places where you can plug in the laptops. The laptops have to be in one spot. We can't move any of them around to create more space on the table. At times, we will be cramped at the table. I don't like that. If you didn't have the plug- in-cords for the

laptops, they would be gone. Sometimes I bring my laptop, so I don't have to mess with the cord tangles from the laptops."

"Technology impacts the appearance of the new generation of learning classrooms. Technology gives the classroom appearance a cutting edge look. If you walk in and see computers, then you are going to like the appearance of the classroom. The technology makes the appearance look of high quality. You'll think there are better instructors teaching the course. I rather go to a classroom that has laptops on the table rather then seeing a blank desk and a white board. If the technology is lacking then the appearance looks dull. Then the college is deemed lower in comparison to other colleges which have technology. You're not going to think much of that place. You're not going to want to go and learn."

Climate. "Technology impacts the climate of the classroom. The air condition broke down on the first day of class. My teacher said for us to pretend we were on the beach. If I were in the beach, I would be in the water. It was so hot and stuffy. I felt terrible. Also, if you have a room full of computers you need it to be cold, so they don't overheat. The more technology you put in the building, the hotter it is going to get. You put 21 computers and the students in the classroom, then that is a lot of heat."

Teaching Style. "Technology influences the teaching style. If you see a laptop, you assume that your teacher will make you work on it. A lot of teachers embrace teaching with computers and PowerPoints. Technology gives the teacher another option on how to teach the classes. They may change their teaching style. Some will go out of their comfort zone, and they will have us use the Internet to research information rather than the information coming only from the instructor. They may want us to do an

assignment in class since we have the laptop in front of us. They can present a PowerPoint and show pictures, music, and video games. All students learn differently. If instructors are limited to what they can use for their teaching, then they may not come across to everybody. Their teaching method or style can conflict with someone's learning style. If they are teaching one way and someone learns another way and you don't have a different way to teach them because you don't have the proper technology, then your teaching style is lost."

Learning Environment. "The technology impacts our learning environment. Without technology we are lost. We depend on it. I can't do without technology. If I don't have technology I can't spell check and take notes because I write too slow. I can't read my own handwriting half the time. The laptop is accessible. It's right there. It also makes learning convenient. You can open it up and do your work. You research topics on different Websites and online encyclopedias. You have all these sources to pull from and learn and form your own opinion about the subject. Technology changes the way we learn. We have the resources right at our finger tips. If it is not present in the classroom, then I feel restricted. Sometimes people will leave early because they need access to a computer."

"There are negative things that technology creates in the learning environment. Some students will not pay attention since they are surfing on the Web. They are not doing what they are supposed to be doing on the laptop. If I have free time in class, I will actually Google things on the Internet."

Emotions. "Technology changes my emotions. I get excited when I see the laptops. I'm like 'Yes, we have technology!' I'm actually taking a course at another

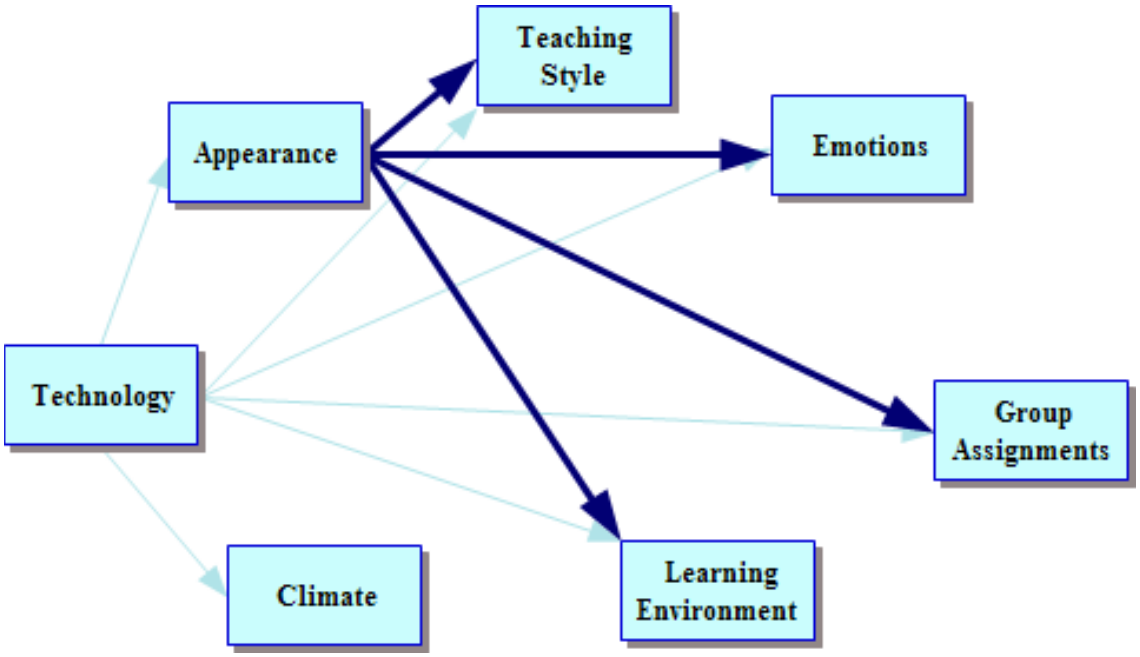
community college this semester. Everything in their campus is old. Nothing works right. They only have wireless in certain places. I know my wireless is not going to work everywhere there. I know I'm going to have trouble logging on to the computers. I'm going to have trouble having a computer in the library. Right off the bat, I'm frustrated. When I come to campus that values technology, I am very happy. I would rather walk into a class and see laptops at the table than walk into a table that has no technology. I can bring my laptop and connect to the Internet. I can sit anywhere I want to sit on campus. I can go outside and use the Internet and do my homework. I'm in a better mood. Sometimes I bring my own laptop. I like to have two computer screens in the classroom, which includes my personal laptop and the laptop already in class."

Group Assignments. "Technology impacts group work. We all work with a laptop. It allows people to collaborate in class rather than having to go to the library. If we have access to technology in the classroom, we will use it. It will improve the quality of our assignments since it provides more available resources to us. Sometimes we need specific software for our work, so we are able to work together in the classroom. We will log on to the Internet and do research instead of throwing something together out of our notebooks. You can actually put something together pretty nice for half a class period. If we didn't have any computers and didn't have up to date technology our presentations would lack information. How can you give a decent presentation with a pencil, colored crayons, and a poster board? It wouldn't be effective. We live in 2007."

Appearance Influences…

Appearance is the secondary driver of the Millennial students' perceptions of the new generation of learning classrooms from this study. Appearance influenced all elements of the system except Technology and Climate as shown in Illustration 4.04

Illustration 4.04: Appearance



Teaching Style. "The appearance of these new classrooms impacts the teaching style. When you look at the new generation of learning classrooms, you automatically think that the teacher is not going to say much. The instructor is going to rely on the computer and tell us what to do on it. The instructor may not teach as much since we will probably be teaching ourselves. They accommodate to the appearance and encourage a lot of group work. Also, the appearance makes it easier for the teacher to walk around the classroom."

Learning Environment. "The new generation of learning classroom appearance impacts the learning environment. Learning is more enjoyable and fun in comparison to a traditional classroom. You are more willing to learn in this environment. You have the color patterns that make people excited. Sometimes when I'm in school I get in that runt like I'm here. I have to take my class and complete my hours. Then, I get to go home. When I go into the new generation of learning classroom, it's not boring. It's more inviting. It puts me in a better mood before my class starts. Learning is not a chore. I won't be anxious at watching the clock. If you see the things you want to see in a classroom, then it is going to be more calming. I will be a lot happier. We brag about taking a class in a new generation of learning environment. Even the teachers brag about it. It's really nice to be in a new generation of learning classroom. This environment creates a pleasant place to work with peers since it is more group centered."

Emotions. "The appearance of the new generation of learning classroom influences the way I feel. The appearance makes me feel that the college invested in me. Everything is new, shiny and pretty. The classroom is comfortable, organized, and relaxing. The colors are bright and neutral. They reflect the environment outside like reds and browns. It makes you feel happier. Dull colors make you sleepy, which you don't want to use in the room. If the students are not paying attention, then they are going to want to go to sleep. If you find the environment not attractive, then you're not encouraged or motivated to come to class. It will be hard to focus since it doesn't appear to be an upbeat environment. There are classes at other college campuses that look run down and dilapidated. I definitely don't have the same attitude walking in the traditional classrooms as I do with the new generation of learning classrooms. As soon as I enter a

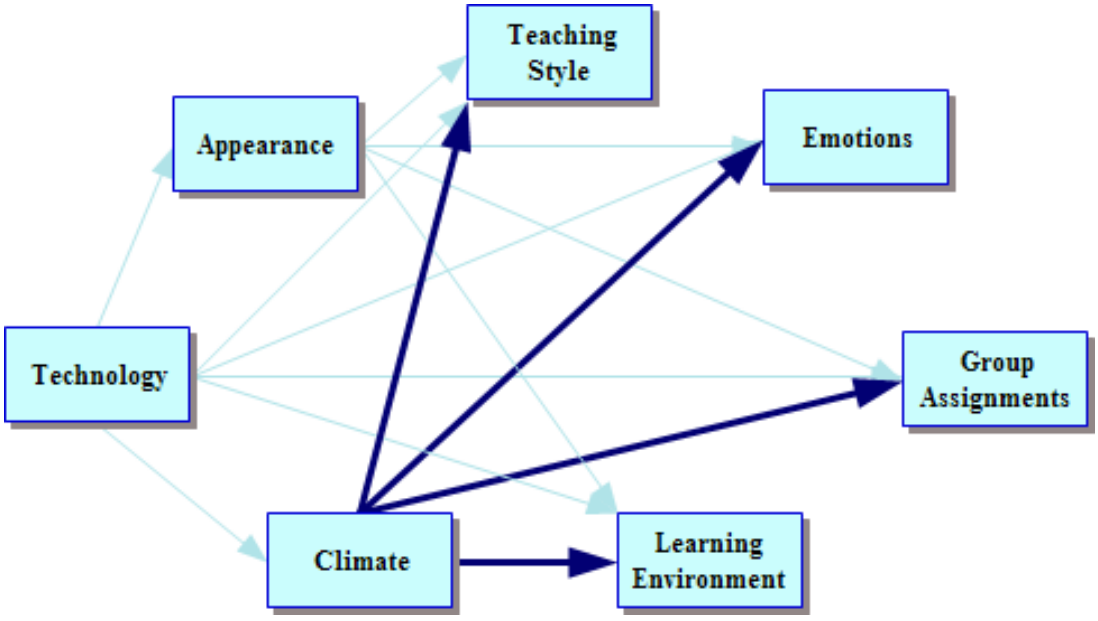
traditional classroom I want the class session to be over. You just want to get out of there."

Group Assignments. "The appearances impacts group assignments. When students walk into the new generation of learning classrooms they will assume that they will do group work. The appearance of the classroom gives you that expectation. That assumption is easily made when looking at the table arrangement. There are tables for students to sit together in groups of four. In a traditional classroom, students would have to take it upon themselves to get together for group work. If you are already sitting in a group, then you work with people you are sitting with at the table. A class is more to do 10 small group projects within the semester instead of two to five in a traditional classroom."

Climate Influences…

Climate was a secondary driver of the Millennial students' perception of the new generation of learning classrooms. Climate influenced all elements of the system except Technology and Appearance as shown in Illustration 4.05.

Illustration 4.05: Climate



Teaching Style. "Climate impacts teaching style. If it is too cold, then the instructors become more worried about either bulking up with sweaters or concerned about the fan not being enough to cool them down. They are not going to want to stay and teach in the classroom long. They become miserable and unhappy. The instructor will cover the subject as fast as he/she can. Then, students won't be happy to sit in the classroom since they will eventually lose focus."

Learning Environment. "The climate impacts the learning environment. People complain that the new generation of learning classrooms are either too cold or too hot. If we are working in a group and everybody is getting hot or cold, then you are not going to want to do your work. You're not paying attention to the instructor. If you are cold, you are going to be curled up in your chair to stay warm. If you are hot, then you are going to

fan yourself and eventually leave the classroom. The temperature can change your mood and the way you respond to the learning environment."

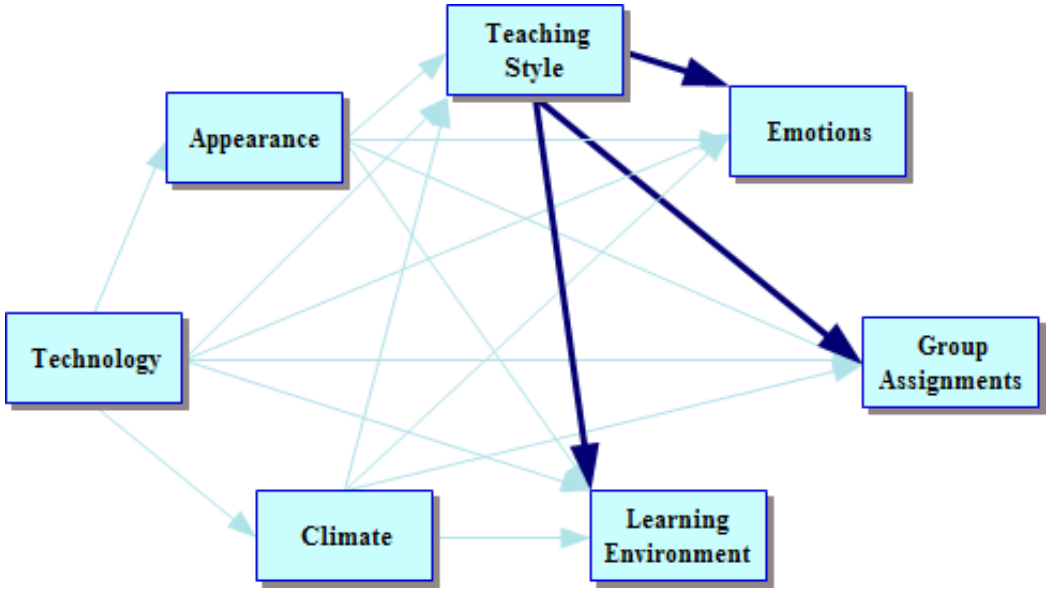
Emotions. "Climate influences me how I'm going to feel. The cold gets me irritated and the heat gets me cranky. If it is cold, then I don't want to do anything. When it is really hot in these classrooms everybody wants to get out quick. Nobody wants to be in a classroom when the temperature is not comfortable. They don't want to learn in there. The climate can be too distracting. Students want a stable climate environment."

Group Assignments. "The climate impacts the group work. If you are cold, you want to keep yourself warm and not move around the classroom. When it is hot then no one wants to get near each other. They will be fanning themselves. The climate is a distraction from doing group work. You won't pay attention to what your peers are saying. Everyone won't be able to think. The temperature should be just right."

Teaching Style Influences…

Teaching Style was the circulators/pivots/? driver of the Millennial students' perception of new generation of learning classrooms. Teaching Style influences all elements of the system except Technology, Appearance, and Climate as in Illustration 4.06. Circulators/pivots/*?* indicates a position in the middle of the system, the pivot point, in the final visual representation of the system.

Illustration 4.06: Teaching Style



Learning Environment. "The teaching style impacts the learning environment. The teacher sets the tone for the entire classroom experience. You can have the most beautiful classroom in the world and if they are just a rotten teacher then you are not going to have a good class. You won't learn and listen to anything. Even if you are in a learning environment which is yucky and you have an excellent teacher, then the instructor can make you forget all that. I think the teaching style can definitely over power any learning environment whether it is positive or negative."

"The method in which the professor teaches impacts how you are going to be set up in the classroom. You may not always be in a huge group. You may be in little groups or there may be an alternative such as using the laptops, white boards, or the projector. The style of teaching will impact the learning environment. The instructors are the leaders."

Emotions. "The teaching style impacts my emotions. When you see that the instructor is really passionate about the subject you are more willing to listen. It can inspire you to do your own research or look into it more. If the information is coming across in an understandable fashion then it would effect your emotions. You'll be upset. If the teacher is constantly lecturing then it is draining. Their tone will influence my emotions toward the class. It is seriously draining when a lecture is for at least an hour. Then, you don't want to listen to the instructors. I'll get irritated and annoyed. If you have a boring teacher or if the teacher is not really student interactive and all they want to do is talk, send you home without answering any questions, no group work, then this will influence the way I learn. I'm going to learn a lot less from that teacher. I'm not going to be as prone to increase my involvement in the class. I'll just say to myself, 'Okay, he wants me to know A, B, and C. I know them. That's it. I'm out of here.'"

"Last semester I had a teacher who wanted everything his way. Every little problem had to be done exactly the way he wanted. If it wasn't, then he would take off a lot of points. That's terrible. He wanted the exact steps that he wrote on there. He would only teach one way. There are so many different ways to figure out a problem. Some students are not going to understand it one way. They will get it another way. The instructors set the mood which influences how you will feel."

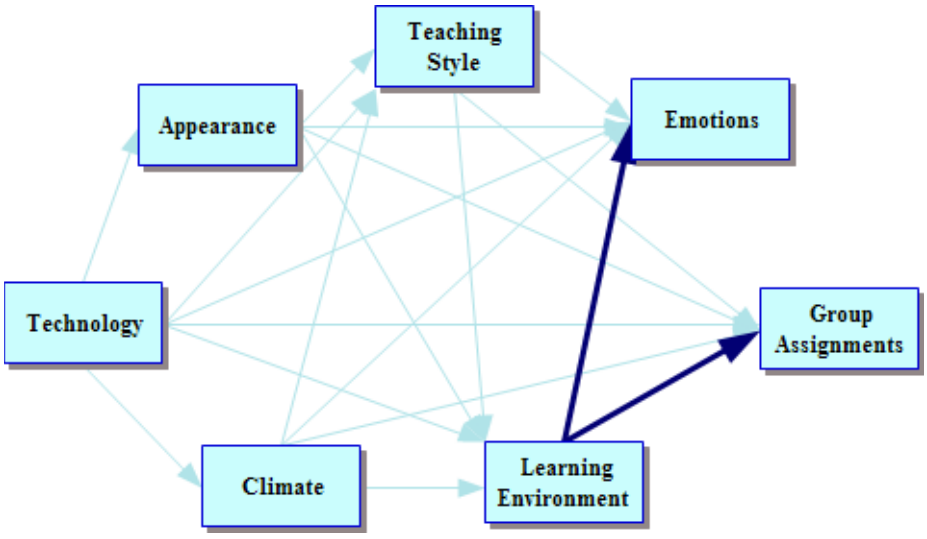
Group Assignments. "The teaching style impacts group assignments. The teachers create the lesson plans and tell the students what type of work they will do together. Some instructors will put people who work well in groups together while other teachers don't like group work. It depends on their opinion on how well group work works in their classroom. In some classes that I've been in you have a lot of group

assignments and that really works well. My teacher always stressed that we need to create bonds and connections and make study groups so you can help each other succeed. I've been in other classes that if you had a group assignment it didn't go very well. Nobody talked to anybody. A lot of it is based on the teacher's style and their attitude towards group work. The teacher dictates if you will group assignments. Just because you sit in groups doesn't mean you are going to do group assignments all the time. It depends on the teacher."

Learning Environment Influences…

Learning Environment is the secondary outcome of the Millennial students' perception on new generation of learning classrooms. Learning Environment has a direct impact on Emotions and Group Assignments, as shown in Illustration 4.07.

Illustration 4.07: Learning Environment



Emotions. "My learning environment in these new classrooms impacts my emotions. The learning environment can change the way you feel depending on the subject or if you are paired with a person you don't like. If a student within the group doesn't cooperate and doesn't work together, then it makes learning more difficult. The talking in the classroom makes me frustrated or stressed or I can't concentrate. You want good people in the class who do not just sit there and talk a lot. I want to work together with other people. We are here for one purpose."

Group Assignments. "When you are sitting in groups you get to know the people around you and you are more prone to want to work with them. In a traditional class, I'm not going to talk in a group as much. I won't know people's names. I'm more likely to get the assignment and get through it and get out of there. Sitting in groups forces me to get to know my peers and talk to them. I make more friends. I'm willing to put myself out there and get involved in the assignment."

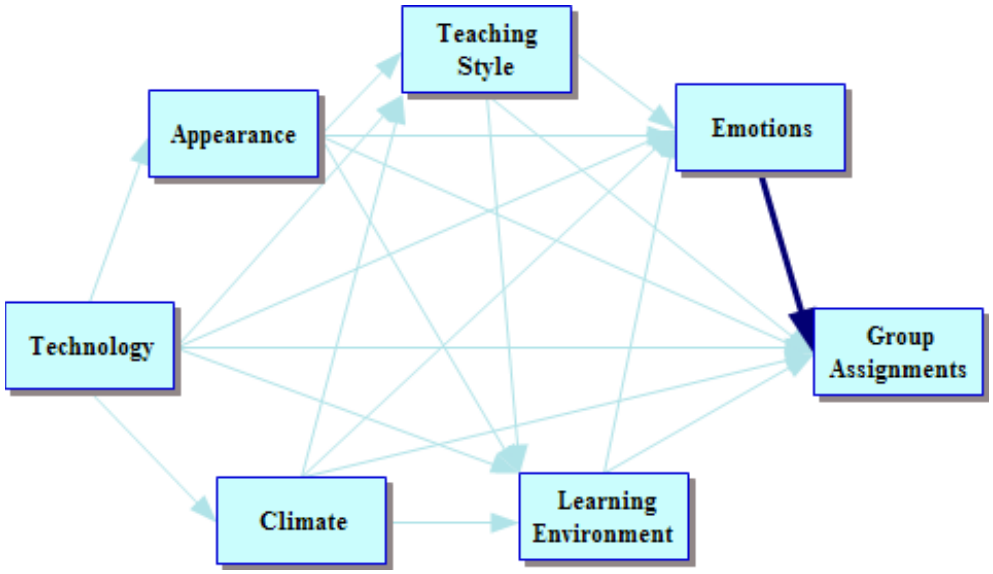
"The learning environment impacts how group assignments are completed. Your learning environment within a group is changed. You have those assertive students who actually take charge. The learning environment within the group is going to decrease because information may not be shared among students. It's going to be tucked away because you are being overpowered by the group leader who took it upon themselves to be in charge. Instead of saying, 'let's get the group's idea or input,' there will be people who will continue to not speak and be shy. They are being suppressed.

"It also comes down to if the people in the group will contribute to the group assignments. Sometimes they will chat and surf the Internet while you are working. You don't want to work with that person even though you are assigned to work together.

Emotions Influences…

The affinity Emotions was a the secondary outcome of the Millennial students' perception of new generation of learning classrooms in this study. Emotions had a direct impact on the Group Assignments affinity as shown in Illustration 4.08.

Illustration 4.08: Emotions



Group Assignments. "Emotions impacts group assignments in these learning environments. Everyone goes by their emotions. Emotions influence what you're feeling towards your group. Regardless of the new generation of learning classrooms, you might not be enthusiastic about a certain group assignment or a member in your group. It can mess up your whole group because you might be upset. You have to feel comfortable in your environment in order to open up to your classmates. Other times I'm excited about my group. I've made friends. In a traditional classroom, we are not forced to make friends and work together. In this new learning environment, sometimes you chose

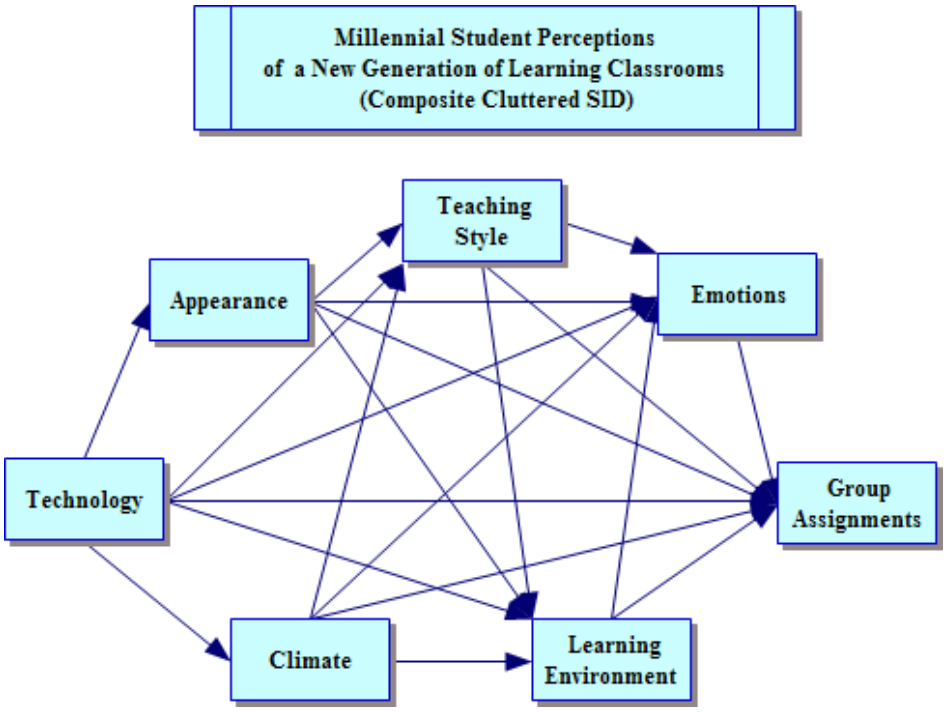
who[m] you will work with because you decide to sit with your friends. Then, you are more inclined to do the group work."

System Influence Diagram (SID)

The System Influence Diagram (SID) is a visual representation of an entire system of influences and outcomes. It is created from the information presented in the Interrelationship Diagram (IRD) as shown in Table 4.05 and 4.06. In developing the SID, all of the affinities were arranged according to the Tentative SID Assignment (Table 4.07). The SID was created with flow chart or "mind mapping" software program known as Inspiration. The investigator began by placing the affinities on the screen in descending order of delta (primary drivers to primary outcomes). Each affinity name was placed in a square. Then, the investigator drew connections (arrows) between each affinity in the direction of the relationship as represented in the IRD. This is shown in the Cluttered SID (Illustration 4.09).

Composite Cluttered SID.

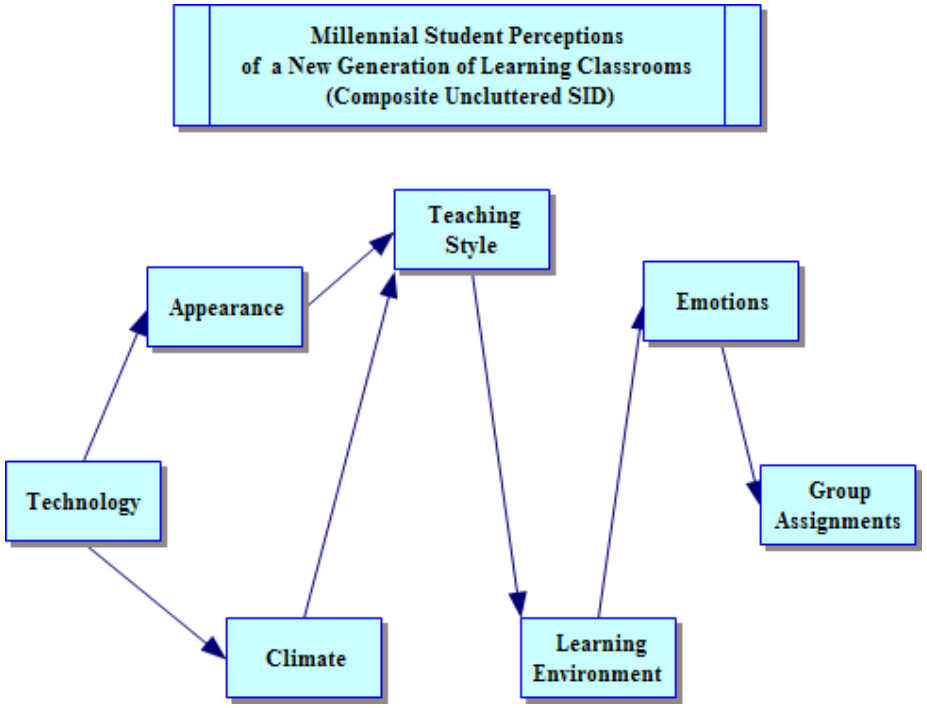
Illustration 4.09: Millennial Student Perceptions of a New Generation of Learning Classrooms (Composite Cluttered SID)



Composite Uncluttered SID.

By removing redundant links, an uncluttered SID was developed. The resulting SID is shown in Illustration 4.10.

Illustration 4.10: Millennial Student Perceptions of a New Generation of Learning Classrooms (Composite Uncluttered SID)



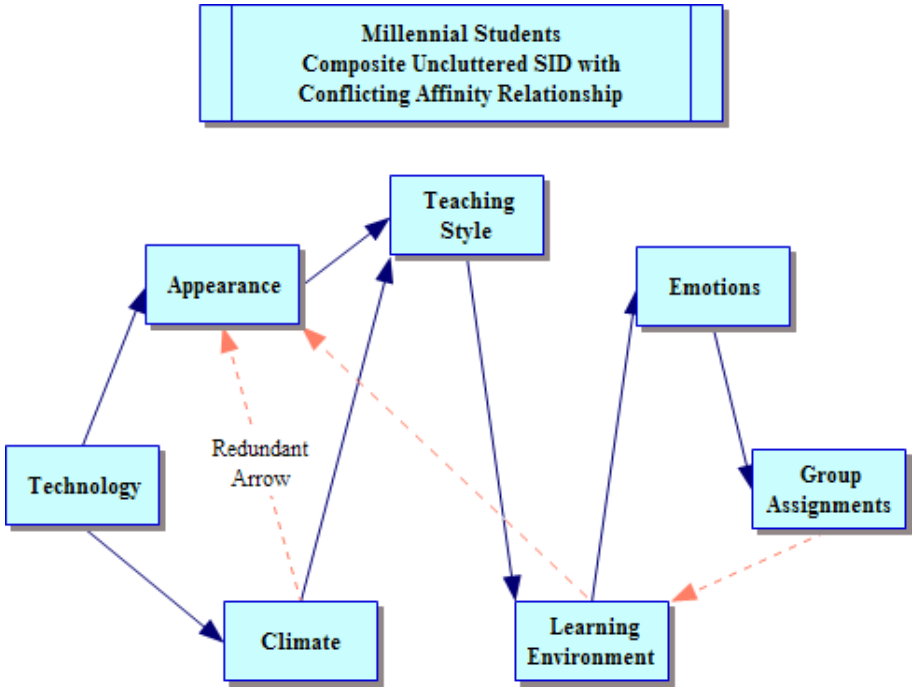
The investigator examined the conflicting affinity relationships that were not used in the Interrelationship Diagram (IRD) to create the System Influence Diagram (SID). Table 4:04 showed there was a conflict with the following affinities:

- 1 > 2 and 1 < 2 (1 = Group Assignments; 2 = Emotions)
- 3 > 4 and 3 < 4 (3 = Technology; 4 = Appearance)
- 4 > 6 and 4 < 6 (4 = Appearance; 6 = Teaching Style)

Since the IRD only allowed for one possibility, the affinity relationship with the highest frequency was selected. To resolve the conflict, the investigator examined the affinity relationships that were not used (1 > 2, 3 < 4, and 4 < 6). These relationships (that

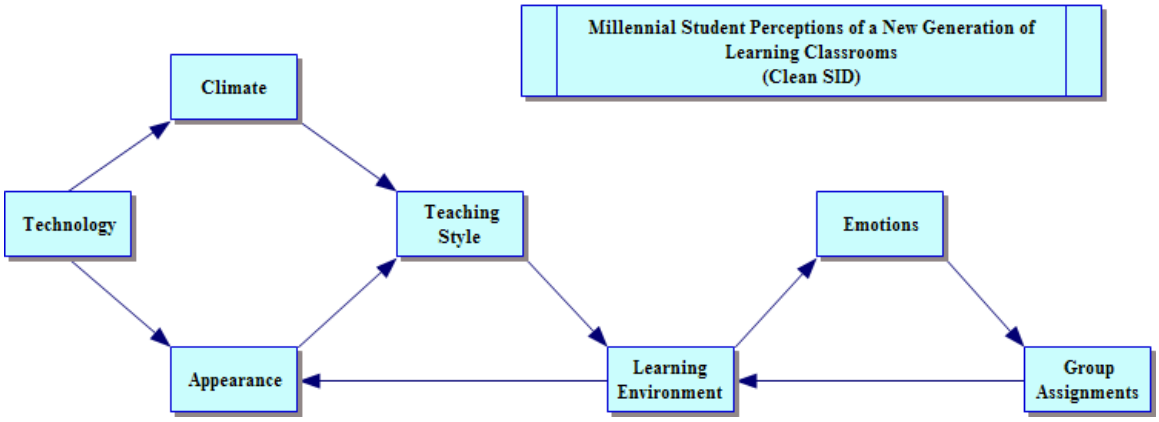
are represented by dashed arrows in the Uncluttered SID to create a feedback loop. This is shown in Illustration 4.11.

Illustration 4.11: Millennial Students Composite Uncluttered SID with Conflicting Affinity Relationships



After the arrows were added to create feedback loops, the investigator eliminated the arrow from Climate to Appearance since it was redundant. Next, the investigator created a Clean SID which is shown in Illustration 4.12.

Illustration 4.12: Millennial Student Perceptions of New Generation of Learning Classrooms (Clean SID)



A description of the system is explained in Chapter Five. The next section will reveal the data (axial and theoretical coding) for faculty participants.

Faculty

Axial Coding Summary - Research Question 3

The faculty identified seven affinities (themes) from the focus groups: Technology, Writing/Work Space, Teaching Style, Appearance, Climate, Student Learning Environment, and Social Networking. The faculty who participated in the interviews were asked to discuss the affinities. All faculty interviews were transcribed by the investigator to analyze the text through. Once all interviews had been coded, the data were summarized to create a composite of the individuals' experience with the phenomenon. Axial data was transferred from each Individual Interview Axial Code

Table to a Combined Interview Axial Code Table. By combining all interviews into one table, the investigator created a database for the entire set of respondents containing all axial codes for all affinities, with each code containing a reference to the transcript and line numbers that produced the code.

The investigator next examined all quotes for each affinity. The quotes for a particular affinity were organized into sub-groups. These subgroups contained quotes that addressed a common theme describing that affinity. Multiple quotes were then combined to develop a composite quote. The following section is a composite description of the seven affinities described by the faculty. This section addressed research question number three: What are the perceptions of a new generation of learning classrooms of faculty?

Technology.

The affinity named "Technology" referred to the laptops that were available to students in the new generation of learning classrooms. Faculty discussed how they incorporated technology into their teaching and what concerns they had with technology security. Six sub affinities resulted: access to technology, students teach each other, online research, technology distractions, technology use, and technology security.

There is a lot of technology. Instructors appreciated the *access to technology* in the new learning environment. "All the technology that I want to use is in that classroom and not in a traditional classroom. I teach in both. I'm able to use a variety of technology. There is a laptop at every desk or one for every person which depends on the new generation of learning classroom set up. I am able to use PowerPoint all the time in the classroom. I create PowerPoint presentations, so the students can see what I'm doing

step by step instead of writing things on the board. We use a web based program in mathematics called My Math Lab and graphing calculators. We can use the digital overhead projection system to show the images to the entire class. I don't talk and explain too much. They like to see what they learn. I just show it to them. Technology is very important. I couldn't use technology in a traditional classroom. I would have to bring a laptop with the software programs on it for the course. There are no computers for the students to use. Some of the classrooms have TV's with a VHS mounted on the ceiling. When I teach in the traditional classrooms, I had to constantly put my hand up to prevent from running in to the television. There is no technology in the traditional classrooms."

My millennial student taught someone how to use technology. Instructors expressed that *students teach each other* in the classroom. "It's really great to see the collaboration between the younger and older students. I have recent high school graduates and women and men who returned to school that have been in the workforce for 10 or 15 years. It's really neat to see how they build relationships and get something done. One of my younger students showed one of my older adults how easy it is to create a PowerPoint presentation. The older person was so excited because she didn't realize what a PowerPoint was. My millennial student felt great because she taught someone how to use technology. Students collaborate and learn from each other and build relationships outside of the classroom. It's nice to have those opportunities. It is critical and valuable to learning. They also get a kick out of helping me. They think it is funny because I don't know how to use technology like they do. Sometimes technology and I don't get along. When I get stuck or I don't know what I did, the students will help me. They get happy. That breaks down the top down approach in the classroom."

Technology enhances instruction. Instructors find that students use laptops for *online research*. "You see the students really happy with the computer. It's like they own the computer. They say that's my computer, and I'm going to work with my computer and look up information. Students really like that. I will have students look together and get information on assessing personality styles, career information, and trends in the workplace. One of the things that students look at quite a bit is Wikipedia. I tell the students that Wikipedia is like an encyclopedia. The information does change. It's easy to get on Wikipedia and get basic information. Students use other sources such as Google, and Ask.Com. They look at Youtube.com for music for their PowerPoint's too. It's interesting. Students access web sites for information. Technology enhances instruction. I can go around and check their computer screens and see if they did it correctly."

Technology has made it easier for students to email, surf the Web, and check their Myspace account in class. Instructors responded that *technology distractions* occur during class time. "Not all the rooms have laptops for each student. The classrooms that do have laptops for everyone can be a distraction. Many students are on the laptop during class time even though it has nothing to do with the class. Technology has made it easier for students to email, surf the Web, and check their Myspace account in class. It gives them a way out if they don't want to pay attention to what I'm doing on the board. That is a distraction for them. I believe if the laptops are there and students use it, then they are the ones missing out on what I'm covering. It's their choice. The students are adults. I don't necessarily crack down when students are engaged in activities that aren't related to the class. I'll crack down when it interferes with other students learning. Sometimes that

can create a negative atmosphere. That kind of distraction I address. I'll give students one warning and say that they should be really focused on class. You are always going to get students who do something they're not supposed to do."

I will let the students know when they need the laptop. Sometimes instructors decreased *technology use* in the classrooms to prevent interruptions. "When I get to the class, I tell the students that I want all the computers off. I know some are looking at who knows what and some of them are writing papers for other class assignments. If a student is surfing the Web they are not interacting in the class. They are not engaged in the class. I tell them that I don't allow that they work on other assignments for another class. If we are working on something else, I tell them that they don't need to have a computer. I will let the students know when they need the laptop. It took me a week and a half to get the students to understand. They know that in my class they are not going to use the computer to email friends and check the emails. I always check to see if every student is on the right Web site."

Free the instructor from playing policeman. Instructors desired to seek alternatives to improve *technology security*. "We need to work on issues with security. I really dislike as a faculty member that first thing I have to do when I walk into a room is count the number of laptops I have available. It's also the last thing I have to do before I leave. I do my count and lock the door. It seems to be that there ought to be some security system that we could attach that would free the instructor from playing policeman. I don't know what would happen if someone would run off with one of them during my watch. They would probably take it out of my pay. Somebody could cut the cable or disconnect the computers. An alarm system should go off, so the instructor

doesn't have to sense that they are responsible. For example, the other night I left during the evening. My brain is already home for the weekend. I walk all the way out to the parking lot, and I realized I forgot to lock the door. I go back and lock the room. I would have been the responsible party if I had not locked it and something was stolen. I would love it if we had different surveillance or different system where the faculty member wouldn't have to play policeman. I would like to get rid of that. I feel we are responsible for guarding the assets of the building. I don't like being responsible for thousands of dollars worth of equipment and feeling somehow that it's my responsibility to protect it. I wish there was a better system."

Writing/Work Space.

The affinity "Writing/Work Space" referred to the white boards in the new generation of learning classroom. Faculty discussed what it means to have plenty of work space for students and themselves to write throughout the classroom. Six sub affinities resulted: writing space, mobile writing tools, teamwork, defining spaces, quality presentations, and projection screen.

There is plenty of writing space. Instructors appreciated the amount of *writing space* in the new learning environment. "I like the whiteboards. It's a lot easier than chalk. I spent one summer semester in a traditional classroom with chalk. It was awful on my hands. The constant writing with the chalk really dried out my hands. I started to have my hands crack by the end of the semester. It seems like a little thing. But when you are writing everyday, it gets painful. I had to constantly carry lotion. The other part is that there wasn't always chalk available. Now, we use markers. Most of the new

learning environments have the large projection ones that are set up to project on it. Then they have a long one that runs across one wall. It works. There is plenty of writing space. I find that there is a lot I can do with that. Sometimes I'll remember that I forgot to add something to the PowerPoint. The good this is that I can annotate on the white board. That's very good. I love using the whiteboard. I think having the whiteboard is a big plus. They are excellent."

I can address specific questions from groups on the mobile white board. Instructors value *mobile writing tools* for teaching. "We have other white boards that students can use and move around the room easily. Some of my classes use this a lot when they work in small groups. I'll try to use as many as possible wherever they are located so that there isn't a set front of the classroom. It can be directionality anywhere. We can do additional explanations as we have an application or movie or whatever we have up on the board to do further explanations. I like the fact that I can address specific questions from groups on the mobile white board. I don't have to go to the front of the classroom to use the big white board."

White boards encourage collaboration among the students. Instructors found the white boards promote a *teamwork* environment. "We have long white boards on the side of the room and four movable white boards that students can use within their groups. If I teach them to brainstorm, I or students will create and write discussion topics on the white boards. The students are eager to write and share their ideas on the white board. They have space to do that. It's wonderful to see them take leadership roles. They sit in their group and write their thoughts on the mobile white boards. They record ideas and ask students to take a second look at an idea which they wrote on the white board. It's

right there in front of them to discuss. They can make a list, draw, or write on it. It is easy to make corrections or revisions on the spot. White boards encourage collaboration among the students. Students will talk about it in their groups. They will then share their ideas to the class. It is very exciting."

Mobile white boards enable me to separate groups. Instructors found the mobile white boards useful when *defining spaces* with a purpose. "I have used the mobile white boards to segregate portions of the class. I might have some students work on corrections on a test. Some students work on a quiz. Some students work on homework. Mobile white boards enable me to separate groups if they are talking about something that doesn't flow over to the next group."

It's great for students to see their work in that professional edge. Instructors continue to believed that students can have *quality presentations* with the white boards. "The nice thing about the white board is that PowerPoint projects very well. It looks crisp and has a nice clean look. It's great for students to see their work in that professional edge. They don't have to worry about the pull down screen that they have trouble yanking down or flapping because of the air conditioning as they give their presentation. It really gives them a sense of confidence. It's going to be similar to what they would find in a working environment even in an educational environment."

The screen is no longer a concern in the classroom. Instructors appreciated the permanent *projection screen* in the new learning environment. "I no longer have to worry about the problematic screen in the traditional classroom. When I first walked into a new generation of learning classroom I noticed that the big board. It was like a black board. Then I called someone from the technology department on where I was to project my

PowerPoint and videos. They said that the big white boards had taken the place of the screen. I was excited. I didn't have to pull it down and up any longer. I use to have problems pulling the screen down. You either couldn't find the strings to pull it down or the string would get hooked on something. It would be so high up that I would have to get the tallest student to pull it down. A couple of times I had to stand on a chair to get the string to pull it down. It wouldn't stay down. I use to sit on the floor in the traditional classroom to hold the screen down for a presentation. I couldn't get another room at the last minute. I had to make it work. I came in the next day and someone else used the projection. They figured out a way to put a chair down and tie the string attached to the screen on a chair. The chair was used as a weight. It's ridiculous that the tool that you would use doesn't work. The screen is no longer a concern in the classroom."

Teaching Style.

The affinity labeled "Teaching Style" referred to how faculty implement instruction in the classroom. Faculty discussed what a new learning environment meant to their teaching style. Five sub affinities resulted: student's attention, group discussion, different roles, engagement, and teach the same.

You need to have different ways of discussing a subject with the Millennials. Some instructors modified their teaching style to keep the *student's attention*. "I use to teach evening classes, and there is such a difference between the nontraditional students and the millennial generation. I had to totally change the way I was teaching the Millennials. I take their short attention span into account. I can have discussion for a whole period on one topic with the older generation of students. If I were to try that now,

I'd see half the class fall asleep. The Millennials students want instant gratification. They want to get to the point. Don't give me all the foo foo. Just get to the point and move on. For nontraditional, they like the foo foo. They can talk on and on about one thing. I can only hold the Millennial's attention span for short periods of time, so I break up my teaching style in the new generation of learning classroom. I like to think that I try and hit as many as different learning styles as possible. If I lecture for a couple of minutes, I better have something else on the other side to keep their attention. I'll show videos and create discussions. There is some parts that they can self discover. I want to teach to their different styles. Constant lecture won't be conducive to learning. It's got to be a mix. It works very well in this environment. The flexibility of the classroom allows me to change my teaching style. You need to have different ways of discussing a subject with the Millennials. If not, then they won't listen."

Teaching in a new generation of learning classroom reminds me to take a break from lecturing. Instructors acknowledged that *group discussion* is valued by the students. "My style has changed to adapt to the new generation of learning classroom environment. I can bring different activities that I haven't used in the past that are technology based. I'll incorporate technology and the mobile whitespace. It has made group activities a little easier. The traditional classroom encourages lecture since the instructor is in one location of the room. I have to fight to not lecture. I can go on and talk forever. Teaching in a new generation of learning classroom reminds me to take a break from lecturing. It reminds me that they have their own voices and thoughts. I make students talk about concepts and do activities because they prefer group discussion. I want them to do more of the talking. They can put their presentations together on their own without me

lecturing them. So I give them the space and time to do that. The traditional classroom makes it so much easier to lecture. I fight myself. I challenge myself to change what I do to make it fit for the classroom environment. It's difficult."

You become a guide. Instructors have taken *different roles* in a new learning environment. "In the new generation of learning classroom, the teacher is not a traditional role. The atmosphere of the new generation of learning classroom lends itself better to the teacher as a facilitator. You are there as a researcher, as an advisor, and counselor. We like to call it like a sage on stage. You become a guide rather the person who does all the lectures and who has all the information. Students ask questions more readily in this atmosphere. I do less talking now in the new generation of learning classroom. I do more guiding, more encouraging. Don't get me wrong. I introduce information, and tell them how to receive it or how to use the information. They in the end have to do the product based on the information they receive that they receive. It's student-centered, student driven. The students are always working on an issue or problem in a reading class or [a] writing class. We always present a problem and they work toward resolving the problem. Students really get the sense that the teacher's role is a facilitator role. Everyone is an expert in some area and has information to share. The teacher may provide the resource or legitimize the information by providing the background and some of the research. All this would be different if the students are aligned like soldiers in a row. Then, they will look at the instructor differently, especially as an authoritative person."

All students have to be involved in class. Instructors encouraged *engagement* in the classroom. "My teaching style is total engagement. It's very interactive. Every student in the room is required to answer questions from me. I go to each one at times.

All students have to be involved in class. If I think someone is not really paying attention, I'll ask that student what he or she thinks about a certain topic. There are days where I say you have to agree within your group on the answer to a problem, and I'll look at one person's paper in the group. I'll do things like that. It forces them to work together. I come around and give them honest feedback. I feel that having the tables set up the way they are whether in small groups enables me to establish a closer bond with the students. Everyone has to interact."

No matter the environment, it will not influence my teaching style. Some instructors continued to *teach the same* in any location. "This new learning environment doesn't really change the way I teach. The teacher style isn't really a function of the room as is the teacher. The teacher can do pretty much anything in any room. My style is more dominate than the environment. No matter the environment, it will not influence my teaching style. If I want to give information or assess or question students, my style is constant in any setting. My teaching style is a style I have had for awhile now. I do the same thing. I don't change the way I do things. This learning environment only enhances my teaching tools such as using technology in the classroom."

Appearance.

The affinity named "Appearance" referred to the classroom layout. Faculty discussed how the appearance of a new learning environment impacted their teaching experiences in comparison to a traditional classroom environment. Nine sub affinities resulted: group work, traditional classroom is inconvenient, classroom layout is flexible,

walk around, space, contemporary furniture, colored walls, instructor's station, and laptop security.

It's not just a room, but a room with a purpose. Instructors found that the learning environment in the new generation of learning classrooms had promoted *group work*. "Students feel more comfortable doing group projects in this space. They can create their own area to work. The students do activities. This will involve moving furniture such as the chairs, tables, and mobile white boards. They get up and move around the classroom. There is a lot of space for learning. It's not just a room, but a room with a purpose. It encourages group work, and the students like that idea. It makes it easy for students to cluster, talk and ask questions to other students and work on projects. They have to know the other students in the class. There is more flexibility to learning in this environment in comparison to a traditional classroom."

The traditional classroom is very uncomfortable. Instructors discussed that the *traditional classroom is inconvenient* for learning. "I do teach a course in a traditional classroom. I call it a stinky classroom because students are seated in rows. The start of the semester I moved the tables into small groups. Everyday I would come in and make some sort of horseshoe because that was the closest I could get to a conversational format. Those tables are heavy. It [tables] has a rhombus design, so you couldn't make a long rectangle. Try to make a horseshoe out of that. It's hard. The problem is that when we do activities in groups, you have to move. The traditional classroom is very uncomfortable, and the chairs are heavy too. Eventually, the tables were put back into rows, which make people have a narrow view of what's going on in the room. They tend to see what's in front of them and maybe immediately to the side, but they have no idea

what's going on behind them or the other side of the room. I think they have less sense of what other students are doing. I think they don't get the same contribution. If you ask a class a question it's a lot harder to get discussion going if people can't make eye contact and see other students engaged. In any other schools, this traditional layout would be considered perfectly fine.

You can easily rearrange the environment to stimulate interaction. Instructors found the new generation of learning classroom favorable since the *classroom layout is flexible.* "Once you experience a new generation of learning classroom, you never want to go back to teaching in a traditional classroom. The atmosphere in the new generation of learning classroom is relaxed, informal, and flexible. This learning environment is radical compared to where we came from. The tables are ideal for group work. One of the things that we've done is take the large group and cut it into smaller groups for activities. We move the eight tables over into other areas. It's very easy to work with when it comes to moving furniture around making it what I need. The tables help make the room flexible. You can easily rearrange the environment to stimulate interaction. The environment is much better than having those tables found in a traditional classroom that keep students in rows. I do a little speaking and more listening. I can have everyone around me, and I'm in the middle. We do all the conversation. I don't know if I can teach in a classroom that didn't have this anymore. I'm sure I could, but I'm sure as heck wouldn't want to."

The classroom layout allows me to access any student right away. Instructors appreciated they could *walk around* the classroom without being restricted by the layout. "The set up of the tables in the new generation of learning classroom is still easy for me

to navigate. It's not like you have to be in the front and center all the time. I like to walk around and see what people are doing. I'll ask them individual group questions, and see if they are on task or getting the issue. I'm not going to shout over a table. I do a lot of walking around. I can tap a student on the shoulder if they are napping. The classroom layout allows me to access any student right away. I do like the openness of it. I think the students are very comfortable with that. We can come from any direction. They may hear our voice from almost any direction. In the past, we had the desks arranged in rows in a traditional classroom. It looked like the students were going to come in and take their Department of Motor Vehicle test. When students are in rows, the most I do is walk along the front and in the middle center. It's a little boring. It's not easy to personally interact with them. The rows are tight. I'm not going to walk between desks. I'm not going to pass two students to get to the third student and look over their shoulder and see what they are working with. It's not conducive to that. The people around the major pathways get the attention. That's unfortunate. I don't teach that way. I don't like walking up and down in the aisles. I don't like people sitting in rows. It can really impede the discussion and small group work. It was frustrating and irritating. This type of environment is uninviting. It's not easy to move around. You can't get to the students right away. You have to work through a row. When you have rows that are unmovable because of the configuration of the classroom, it does stifle what you can do and what you can present and how the students interact with one another. It would be hard for me to say to the first row to go interact with the back row. The instructor is forced to stand in the front. So this creates an authority in one area. The traditional classrooms are

uncomfortable. I wouldn't want to learn in the old learning environment. I wouldn't be apt to go back."

It's incredible to have space. Instructors enjoyed the *space* in the classroom for teaching. "From what I see, students feel more comfortable in the new generation of learning classroom. The atmosphere is much more relaxed because the students feel they have more space to interact. I can move the tables to play Shakespeare scenes in the classroom. It's incredible to have space and create a stage. It would be harder in a traditional classroom. We usually feel crowded. The new generation of learning classroom is conducive to interaction and engagement."

The furniture design is modern and sleek. Instructors described the *contemporary furniture* in the classroom. "When the new generation of learning classroom was first piloted, I was amazed by the furniture. The table design is modern and sleek with a retro twist. It has rounded table corners. The chairs are on wheels. They push really easily. The chairs are light weight, strong, functional, and attractive at the same time. They chairs are much more comfortable because they are adjustable by height. Students can glide from one table to anther to work with other students. We just push the chair across the classroom. It lends itself to more collaboration. I didn't feel that in the traditional classroom. Those chairs didn't have wheels. You would have to pick up your chair and move it. You could turn around maybe and talk to the person behind you or somebody next to you."

The colors give you a sense that the learner has been taken under consideration. Instructors discussed their amazement about the impact of *colored walls*. "The colors on the wall are different from a traditional classroom. When I walked in the

new generation of learning classroom my first impression of the colors was 'O my gosh. Wow. It looks great!' I would have never thought to put these colors together, and I frankly didn't appreciate how color makes a difference in an environment. I usually don't notice things like that. I know it makes a difference in someone's home. I wasn't necessarily connecting on the difference it made in school. I think it really is helpful to have some variety in color and to have something with distinction to it. I think color really has to do a lot with the mood of a person. The colors are warm earth tones – browns and greens. The subtleness of the colors in the classroom and carpeting adds to the environment. It's soothing, warming, friendly, welcoming, and not too institutional. I like they alternate colors on the walls. The classroom appears modern and up-to-date and makes a person feel that everything you need is there. The colors give you a sense that the learner has been taken under consideration. I think that makes a comfortable relaxed setting. Historically, the colors of the classrooms are boring white like a hospital room. There is nothing eye popping of colorful in the whole room."

You're jammed at the instructor's desk. Instructors continued to seek alternatives to modify the *instructor's station*. "There is a station for the instructor with a stationary computer desktop. We are starting to redo the instructor area. Right now it's cramped. It makes the teaching style difficult because now you don't only have the desktop computer on your desk. You also have the printer, monitor, and keyboard. There is a little space probably 2 foot by 2 foot for any supplemental materials. If you are one who likes to use a podium, you have to put that there too. Now you're jammed at the instructor's desk. Plus, when the students print they come up to your desk. That's not good. I'm on the computer probably 60% of the time, so I'm at the desk a lot. We have been looking into

alternatives to address this concern. If we have a teacher station that moves around that would be nice. There are certain times that I don't want to be tied to a particular spot. If there was a wall to dump our materials or have a moveable pedestal then that would be helpful."

There are some security measures that have impacted our flexibility. Instructors raised concerns about *laptop security*. "Issues we have with this learning environment are the cords that are attached to the laptops. Each laptop has two sets of cords for power and security. The laptops obviously need the power supply. We have also had laptops stolen. There are some security measures that have impacted our flexibility a little bit. There are security cords attached to the laptops. If you leave the room, you have to lock everybody out."

Classroom Mood.

The affinity called "Classroom Mood" referred to the external elements that influence the classroom tone. Faculty discussed what the classroom ambiance meant for students and themselves when participating in a new learning environment. Two sub affinities emerged: temperature and teacher's tone.

The room can get either really hot or really cold. Instructors have been impacted by the classroom *temperature*. "The challenge we have had in these new learning environments is with our air conditioning. The room can get either really hot or really cold. That is not so fun. Sometimes it can be cold to the point where it becomes like the white elephant in the room. Everybody notices it. It impacts everyone behavior. It's an unwelcome guest. In that respect, I wish that the temperature was a little more moderate.

I tell students to bring a sweater because they never know what's going to happen there. When it's cold students put on a sweater. When it's hot they take it off. It's disruptive. Throughout the day it cycles like that. It's never constant. When I gave my students a final exam last semester, the classroom temperature had to be about 50 degrees. It was colder in the room than it was outside. This is during the winter time. It was crazy. I told them if I complain about the temperature, they are going to go the other extreme and you guys are going to be sweating up a storm. If they can regulate the temperature, that would better. I don't want it to be extremely hot, but it's frequently way too cold. By having a nice climate, students will be more inclined to learn, better social networking."

Whatever the instructor's tone is, the students will reciprocate the same. Instructors explained how the *teacher's tone* influences the classroom mood. "The classroom tone has to do with how the instructor presents themselves to the students. They are really going to set the tone in the beginning. Are they going to be the type of instructor that expects their students to sit there and do nothing, or are they going to interact with them. Whatever the instructor's tone is, the students will reciprocate the same. Regardless in any environment, if the instructor makes the classroom comfortable, then the students will be comfortable. It's up to the instructor if he or she wants to engage the student in a variety of ways such as debate, discussion, and sharing information."

Student Learning Environment.

The affinity called "Student Learning Environment" referred to how the layout of the new generation of learning classroom impacted relationships in the classroom.

Faculty discussed how a new learning environment facilitates interaction among students and with the instructor. Five sub affinities resulted: assisted learning, approachable figure, network, engaged, and cheat.

The students look out for one another. Instructors found that students *assisted learning* among each other. "The new generation of learning classrooms has made a difference. Students come into the classroom and sit at the tables. The environment naturally makes them form into groups without me having to tell them to do so. The tables encourage group visitation. When students sit at a table, they make new friends. Students who wouldn't normally talk now ask questions in their group. They become very comfortable with the group. Each member of that group becomes responsible for the next member of the group. There are occasions when a student can explain to another student about the course material. They speak in their language. They understand each other better. When I tried to explain it, the student didn't get it. There is always an opportunity for students to teach each other. They have to call each other when they are not going to be in class. The students look out for one another when they are absent. They will either call, text message, or email one another. The atmosphere encourages interaction. This is helpful when they are assigned to work on an activity together. If I had to teach in the row fashion I don't think the students would have talked to each other as much as they do. I don't think they would have felt as relaxed as they do. It's hard to do group activity when you don't feel comfortable. The location influences student impressions of the space and how they will respond to the environment. There is a feeling of teamwork. It's collaborative atmosphere."

My students call me by my first name. Instructors have become an *approachable figure* in the new learning environment. "The new generation of learning classrooms are less formal than a traditional classroom. When I first taught I was basically told you have to be like the authoritative boss person. Now, I melt in to the environment, and I am also taught by the students. I become one of them, and learn with them. My students call me by my first name. I feel I have a good relationship with them. I'm not the sole expert in the classroom. They are not scared to talk to me. Of course, I don't want them to be. They feel that I'm accessible. I walk around. This makes the students feel more comfortable in the class. One time when we had external visitors looking at our new classrooms, one of my students expressed that my accessibility meant I was there to help him learn. What was interesting was the visitor responded and said, 'Then you don't respect her,' assuming that I was more accessible because I was more like a friend. He said, 'No. I have more respect for her because she is able to maintain classroom authority in the sense that we know she is the teacher. Her focus is to help us do our best. If that means that she sits down next to us or stands somewhere else in the room or get down on the floor to help us understand, then she has the ability to do that.' I thought that was an interesting response from the student. The students are respectful. They know where the line is between us. It's a friendly environment. It's not like 'I can't talk to her or ask her this.'"

The new generation of learning classrooms is set up for the students to interact. Instructors made sure students *network* with all students in the class. "There is always interaction between students. Normally, when students enter a classroom they sit with their friends. They sit with the people they know because students don't know what to

expect from the class. When I see that they are comfortable within their groups, I tell them it is time to change. I break up the groups. Sometimes I'll assign students to work together. It's important that the students meet new people. I don't want them to only know the people they sit with at the table. I change it according to behavior. If I see one is talking to the other because they are friends, then they I'll split them. They will go to a different table. When they become comfortable with their groups they may have discipline problems. If they are friends, then they will talk when the instructor is talking. The new generation of learning classrooms is set up for the students to interact."

Students are engaged. Instructors saw that students were more *engaged* in the new learning environment. "I can tell you that from being in traditional classrooms and in a new generation of learning classroom, I get much more student interaction in a new generation of learning classroom. I can see a real difference having taught for around 16 years. I struggled to get my students to participate, respond, react, and ask questions in a traditional classroom. When instruction was done students would leave. Now, students are engaged. They ask questions. They want more information in this new learning environment. Students ask, 'Can you cover this? Where can I find out more information? Do you have any other Web sites I should look into for the assignment?' I'm always running 15 to 20 minutes late because someone is asking more questions as it ties to information. There is always discussion. If they have technology at home, then they take the information that they use and continue to research and investigate and take it out to their family and children."

To prevent cheating, I move the students away from each other. Instructors became concerned that the tables might make it easier for students to *cheat*. "I don't trust

the students a 100 percent when they take an exam or a quiz. I have had experiences with students who look at the students work. This can be easily done by the way they are sitting in groups at the tables. Even though I make an announcement in class for students to just look at their own work, I can still see their wondering eyes. To prevent cheating, I move the students away from each other during exams. I make sure that there are only two students per table rather than four per table."

Social Networking.

The affinity called "Social Networking" referred to the support system in the classroom and the online interaction among students. Faculty discussed how students helped each other learn and socialize online. Four sub affinities resulted: support system, disseminating information, networking online, and Myspace.

Students know the expectation of the learning environment is to form a network. Instructors expressed that the new learning environment encourages their students to create a *support system*. "Students become familiar with each other because they are sitting in a small group as opposed to sitting in rows. They become friends, know each other's names, and exchange phone numbers. When the students miss a class, they send an email or call each other. They trust their friend to tell me of their absence. One semester I had a group of students meet continuously for breakfast to work on assignments. If I said tomorrow will be a reading day, then they would definitely get together outside of class to talk about it. They also talk about social events and jobs. The new generation of learning classrooms are a good networking environment. It is important that they [students] do social network with each other in class. The students are

able to establish bonds and community. If you feel like someone is looking out for you or is interested that you are coming to class, you are less likely to skip. People need each other. We are not meant to be solitary creatures. We're meant to live in communities, help each other, and be interdependent. Social networking is very important especially in a class where students can struggle. If they can form study groups, students are more likely to pull it through. I've witnessed many tutor sessions before classes. When students can learn together there are able to learn better and faster and a deeper level because you have natural competition. There will be students who want to be as good as their peers. If someone is shy, he/she can still get help from a peer at their table. Students don't necessarily always have to go to the teacher for help. They encourage each other. Students make connections and help each other. If they don't interact with the others, then they may not experience that peer support. These networks enable students to not be afraid to ask for help. Students know the expectation of the learning environment is to form a network. The tables are set up encourage communication and a social networking. It's the nature of the class. It's expected that they will interact."

The students share information with each other. Instructors found that group settings promoted *disseminating information*. "They talk about everything such as the instructors they have, homework assignments for other courses, social events, and careers. There are mini sessions occurring within the group. The students share information with each other. Sometimes they will email a link that will be useful to their peer sitting in his or her group. This network among the groups is a support structure."

I always address surfing the Web during class time. Instructors discouraged students from *networking online* during class. "A student logging on the Internet and

doing things unrelated to class is annoying. It's bad manners. It's hard for instructors to completely stop this behavior. When I walk around, I can see students checking their email or Myspace account during class time. If they miss out on something, then they miss out. If the student asks me, I'll say 'I just covered that. Ask your neighbors.' Luckily their neighbors are more understanding than I am. Most of the time, I'll just place my hand on the student's arm and deliver the message that I know what you are doing and stop it. You don't have to say anything. It's like your mother or father's withering glance. Kids are very sophisticated. I always address surfing the Web during class time in my syllabus. We talk about how this can bring disrespect between students and instructor. That kind of activity really needs to be curtailed because their surfing interferes with their ability to learn and my ability to teach. I know it happens more than I'm aware of. That is not why we are there. It's probably a generational thing."

I have students who spend time on Myspace. Instructors recognized *Myspace* as an interaction tool among students. "Myspace is interesting. I need to spend some time on Myspace. This is being talked about and used by a lot of students. Myspace is an example of a lot of person to person interaction that has gone online. I don't think it's a bad thing. I have students who spend time on Myspace. Myspace is an online location for people to socialize. Some instructors will turn it into a learning experience and have their students make their own web pages and look at somebody else's site."

Theoretical Coding Summary - Research Question 4

After the Axial Coding had been completed, the investigator conducted a Theoretical Coding analysis of the text. The purpose of theoretical coding is to determine

the "cause-and-effect relationships (influences) between all the affinities in a system" (Northcutt & McCoy, 2004, p. 149). Thus, the investigator analyzed the second section of each interview transcript in which participants discussed their perspectives on how each affinity relates to other affinities. A theoretical code database for the entire set of interviews was created. Within the database, each theoretical code was associated with the specific transcript and line number containing the code. Since individual respondents identified relationships differently, relationship frequencies were tallied and reconciled using the Pareto Protocol (Northcutt & McCoy, 2004). The relationship with the highest frequency was documented in the Interrelationship Diagram (IRD) and represented in the System Influence Diagram (SID). This section addressed research question number four: How do faculty relate to a new generation of learning classrooms?

Pareto Protocol.

According to Northcutt and McCoy (2004), the Pareto Protocol is a method that is utilized to document the degree of consensus when participants disagree on the direction of a relationship. The investigator counted the number of respondents who identified the relationship in the same direction and placed the tally in the Theoretical Code Frequency Table (Table 4.08). The same was done for all respondents who identified the relationship in the opposite direction.

Table 4.08: Faculty Combined Interview Theoretical Code Frequency Table

Affinity Name
1. Technology
2. Work Space
3. Student Learning Environment
4. Teaching Style
5. Appearance
6. Classroom Mood
7. Social Networking

Faculty Combined Interview Theoretical Code Frequency Table

Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency
1 → 2	6	2 → 4	6	3 → 7	9
1 ← 2	2	2 ← 4	5	3 ← 7	1
1 → 3	10	2 → 5	8	4 → 5	6
1 ← 3	0	2 ← 5	2	4 ← 5	4
1 → 4	6	2 → 6	5	4 → 6	7
1 ← 4	4	2 ← 6	1	4 ← 6	0
1 → 5	7	2 → 7	4	4 → 7	10
1 ← 5	3	2 ← 7	0	4 ← 7	0
1 → 6	5	3 → 4	3	5 → 6	5
1 ← 6	2	3 ← 4	7	5 ← 6	1
1 → 7	9	3 → 5	3	5 → 7	9
1 ← 7	0	3 ← 5	6	5 ← 7	0
2 → 3	8	3 → 6	3	6 → 7	7
2 ← 3	0	3 ← 6	5	6 ← 7	1

The results of the frequency tallies were transferred into the Pareto and Power Analysis Table as shown in Table 4.09.

Table 4.09: Faculty: Affinities in Descending Order of Frequency with Pareto and Power Analysis

Faculty: Affinities in Descending Order of Frequency with Pareto and Power Analysis					
Affinity Pair Relationship	**Frequency Sorted (Descending)**	**Cumulative Frequency**	**Cumulative Percent (Relation)**	**Cumulative Percent (Frequency)**	**Power**
1 > 3	10	10	2.4	5.6	3.2
4 > 7	10	20	4.8	11.1	6.3
1 > 7	9	29	7.1	16.1	9.0
3 > 7	9	38	9.5	21.1	11.6
5 > 7	9	47	11.9	26.1	14.2
2 > 3	8	55	14.3	30.6	16.3
2 > 5	8	63	16.7	35.0	18.3
1 > 5	7	70	19.0	38.9	19.8
3 < 4	7	77	21.4	42.8	21.3
4 > 6	7	84	23.8	46.7	22.9
6 > 7	7	91	26.2	50.6	24.4
1 > 2	6	97	28.6	53.9	25.3
1 > 4	6	103	31.0	57.2	26.3
2 > 4	6	109	33.3	60.6	27.2
3 < 5	6	115	35.7	63.9	28.2
4 > 5	6	121	38.1	67.2	29.1
1 > 6	5	126	40.5	70.0	29.5
2 < 4	5	131	42.9	72.8	29.9
2 > 6	5	136	45.2	75.6	30.3
3 < 6	5	141	47.6	78.3	30.7
5 > 6	5	146	50.0	81.1	31.1
1 < 4	4	150	52.4	83.3	31.0

2 > 7	4	154	54.8	85.6	30.8
4 < 5	4	158	57.1	87.8	30.6
1 < 5	3	161	59.5	89.4	29.9
3 > 4	3	164	61.9	91.1	29.2
3 > 5	3	167	64.3	92.8	28.5
3 > 6	3	170	66.7	94.4	27.8
1 < 2	2	172	69.0	95.6	26.5
1 < 6	2	174	71.4	96.7	25.2
2 < 5	2	176	73.8	97.8	24.0
2 < 6	1	177	76.2	98.3	22.1
3 < 7	1	178	78.6	98.9	20.3
5 < 6	1	179	81.0	99.4	18.5
6 < 7	1	180	83.3	100.0	16.7
1 < 3	0	180	85.7	100.0	14.3
1 < 7	0	180	88.1	100.0	11.9
2 < 3	0	180	90.5	100.0	9.5
2 < 7	0	180	92.9	100.0	7.1
4 < 6	0	180	95.2	100.0	4.8
4 < 7	0	180	97.6	100.0	2.4
5 < 7	0	180	100.0	100.0	0.0
Total Frequency	**180**	**Equal Total Frequency**	**Equals 100%**	**Equals 100%**	**Power = E-D**

The investigator examined the Cumulative Percent - Frequency and the Power of the table. Northcutt and McCoy (2004) recommend that when the Cumulative Percent reached 80%, this would be the cut off for acceptable affinity relationships to be used to create the SID. Thus, the cut off for the affinities in this study was 81.1%. All affinities and their frequencies that had at a Cumulative Percent – Frequency at and below an 81.1% were documented in the next step of the Pareto Protocol. This is shown in the

Conflict Table (Table 4.10). The results were sorted by affinity pair relationship ascending order.

Table 4.10: Faculty: Conflict Table by Affinity Pair Relationship

Faculty: Conflict Table by Affinity Pair Relationship		
Affinity Pair Relationship	**Frequency**	**Conflict?**
1 > 2	6	
1 > 3	10	
1 > 4	6	
1 > 5	7	
1 > 6	5	
1 > 7	9	
2 > 3	8	
2 < 4	5	X
2 > 4	6	X
2 > 5	8	
2 > 6	5	
3 < 4	7	
3 < 5	6	
3 < 6	5	
3 > 7	9	
4 > 5	6	
4 > 6	7	
4 > 7	10	
5 > 6	5	
5 > 7	9	

To examine the affinity pair relationships for conflict, the investigator identified whether the same affinity pairs were present with different influence directions. Table 4:10 shows there was a conflict with the following affinities: 2 < 4 and 2 > 4. “The IRD

allows for only one of two possibilities with respect to these relationships," thus; "a choice must be made" between conflicting pairs (Northcutt and McCoy, 2004, p. 290). To solve the conflict temporarily, Northcutt and McCoy (2004) recommend the affinities with the highest frequency be used for the Interrelationship Diagram (IRD). The affinity pair 2 > 4 had a higher frequency (6) in comparison to affinity pair 2 < 4 which had a frequency of 5. Therefore, the investigator used affinity pair 2 > 4, as well as all non conflicting affinities to create an Interrelationship Diagram (IRD). After the IRD was created, the investigator examined the conflicting relationships not used and included it in the Uncluttered System Influence Diagram (SID). This is discussed later in this chapter.

Interrelationship Diagram.

To begin rationalizing the system the investigator used the Interrelationship Diagram (IRD) to examine all relationships in the system as an as shown in Table 4.11. Then, the IRD was sorted in order of delta as shown in Table 4.12.

Table 4.11: Composite Interview IRD

Affinity Name
1. Technology
2. Writing/Work Space
3. Student Learning Environment
4. Teaching Style
5. Appearance
6. Classroom Mood
7. Social Networking

Tabular IRD										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**OUT**	**IN**	**Δ**
1		↑	↑	↑	↑	↑	↑	6	0	6
2	←		↑	↑	↑	↑		4	1	3
3	←	←		←	←	←	↑	1	5	-4
4	←	←	↑		↑	↑	↑	4	2	2
5	←	←	↑	←		↑	↑	3	3	0
6	←	←	↑	←	←		↑	2	4	-2
7	←		←	←	←	←		0	5	-5

Count the number of up arrows (↑) or *Outs*
Count the number of left arrows (←) or *Ins*
Subtract the number of *Ins* from the *Outs* to determine the (Δ) *Deltas (*Δ = Out- In)

Table 4.12: Composite Interview Sorted IRD

Tabular IRD – Sorted in Descending Order of Δ										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**OUT**	**IN**	**Δ**
1		↑	↑	↑	↑	↑	↑	6	0	6
2	←		↑	↑	↑	↑		4	1	3
4	←	←	↑		↑	↑	↑	4	2	2
5	←	←	↑	←		↑	↑	3	3	0
6	←	←	↑	←	←		↑	2	4	-2
3	←	←		←	←	←	↑	1	5	-4
7	←		←	←	←	←		0	5	-5

The deltas listed in the sorted IRD (Table 4.12) mark the position of the affinities within the system. The highest delta number represents the *primary driver*. An affinity labeled as a primary driver is described to be a significant cause that affects many other affinities, but is not affected by others; thus, there are no *Ins*. Other positive deltas represent *secondary drivers*. A secondary driver is identified when there exists both *Outs* and *Ins*, and there are more *Outs* than *Ins*. *Circulators/Pivot/?* are identified when there exists an equal number of *Outs* and *Ins* and indicates a position in the middle of the system, the pivot point, in the final visual representation of the system. Deltas (Δ) with negative numbers are outcomes. The *secondary outcome* is identified when more *Ins* than *Outs* exist. Finally, an affinity with no *Outs* is always a *primary outcome*. The primary outcome has a significant effect caused by many of the affinities, but does not affect the others. The Tentative SID Assignments Table shows the initial placement of affinities for the SID.

Table 4.13: Tentative SID Assignments

Tentative SID Assignments		
1	**Primary Driver**	(Technology)
2	**Secondary Driver**	(Writing/Work space)
4	**Secondary Driver**	(Teaching Style)
5	**Circulator / Pivot / ?**	(Appearance)
6	**Secondary Outcome**	(Classroom Mood)
3	**Secondary Outcome**	(Student Learning Environment)
7	**Primary Outcome**	(Social Networking)

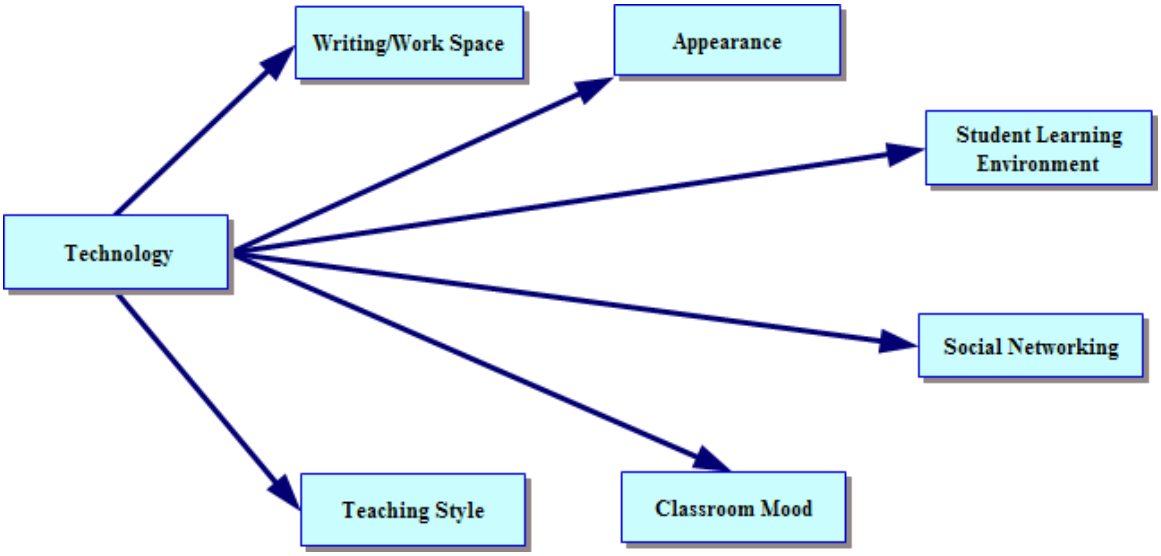
Composite Theoretical Descriptions.

This section provides a description of each relationship represented in the system. These relationship descriptions explain the entire system of drivers and outcomes based on a composite of the faculty interviews. Theoretical codes describing the link between affinity pairs are interpreted beginning with the affinities with the highest number of positive deltas (system's primary driver) and proceeding to the affinities with the highest number of negative deltas (system's primary outcome) as represented in Table 4.11 (Composite Interview Sorted IRD). The order of affinities is as follows: Technology, Appearance, Climate, Teaching Style, Learning Environment, Emotions, and Group Assignments.

Technology Influences…

Faculty reported Technology as the primary driver in their perception of the new generation of learning classrooms. Technology had a direct influence on all elements of this learning environment as shown in Illustration 4.13

Illustration 4.13: Technology



Writing/Work Space. "Technology influences the work space on the white board. I project the Internet, PowerPoint's, videos, and things I'm covering on the white board. Also, the white board we have is now higher on the wall and a different surface to accommodate the technology. I find that I do less writing, diagramming, and drawing when I have good technology to use. I can project anything onto this work space. We upgraded our white board, so that we can accommodate the technology. Many times students have learned more than one way. If they miss it, then I can explain the topic further on a white board next to the technology they are looking it."

Teaching Style. "Technology impacts my teaching style. I am able to create assignments that involve technology. It allows me to be more creative. I will use PowerPoint, Internet, videos and Blackboard. Technology stimulates my teaching style and reminds me to not be the talking head at the front of the room at all times. Rather

than lecture, I may have them do activities with technology. I eventually plan to do some voiceovers on my PowerPoint's."

"Teaching style is not really influenced by technology. Technology is just a tool. It can enhance learning. It can provide information and resources. It doesn't influence teaching style."

Appearance. "Technology impacts the classroom appearance. When I use to teach in a traditional classroom there were desktop computers. When I stood in front of the class, all I saw were monitors and hard drives. I couldn't see my students. They were trapped behind the computers. To get a group discussion, you would have to have people move out from their computer's. The table surface was completely taken by the technology. I had to walk up and down the aisles like a jailor to make sure they were not surfing the Web when I was in class talking. In the new generation of learning classrooms, the laptops are in the middle, and the students have plenty of room on the table. They can see each other. They are higher than the laptop."

"When you have technology that cannot be moved around as easily, then your layout has to follow that. The projector is mounted in the ceiling and it faces one direction. Since the position is fixed, then the classes are forced to face one direction to see the projection. If the video can be swung around 360 degrees, then it wouldn't matter. Your whiteboards would go around the whole room.

Classroom Mood. "Since there are computers on the desks, the students feel like they own the computers. There is a sense of ownership in the classroom. They will say, 'This is my computer, and I'll use it when I want to.' Students are excited to have access

to a laptop and the Internet. This encourages them to become engaged in the class discussion."

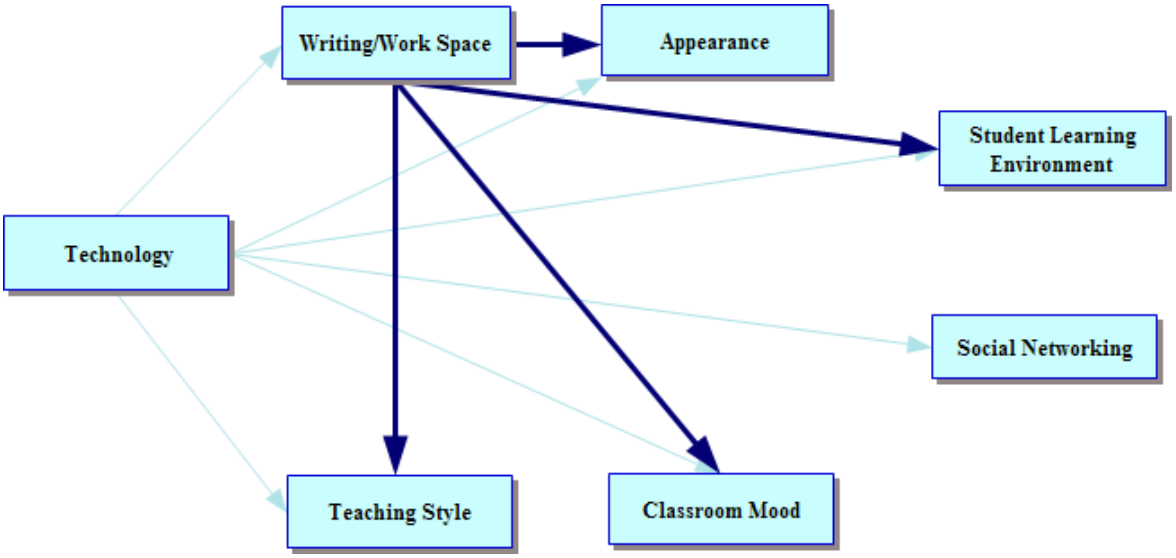
Student Learning Environment. "Technology has an influence on the student learning environment. Technology is a tool that is used in the classroom environment. It increases student engagement and collaboration. It gives students the opportunity to interact more with each other. They have the World Wide Web at their fingertips. They are able to see movies and hear it with a crisp sound. They are able see all kinds of things. Knowing that students have access to technology and the white boards gives them a positive feeling in class. It excites them. It lets them know that those resources are available. They don't have to get frustrated walking across campus to go to the library. Somewhere between the library and classroom they decide to leave the campus and go straight to their car. They don't want to deal with finding an available computer at the library."

Social Networking. "Technology influences social networking. If students are given an assignment that involves technology, and if they are having trouble, they will find the network of students to work with that they feel comfortable and asking questions. Usually, they are more comfortable asking each other for help than asking the teacher. Collaboration evolves around technology. Each student has a computer, but each student is working on their part of the group assignment. Since the students work on presentations, this encourages networking outside of the classroom. The learning is not confined in the classroom. Students interact with each other on how they do activities. There is more interaction between more students."

Writing/Work Space Influences…

Faculty reported Work Space as the secondary driver in their perception of the new generation of learning classrooms. Work Space had a direct influence on all elements of this learning environment except Technology and Social Networking as shown in Illustration 4.14.

Illustration 4.14: Writing/Work Space



Teaching Style. "If I compare my teaching style back to what we use to have in the classroom, the work space in this new learning environment did impact my teaching style. In the traditional classroom, I planned my lecture and activities according to how much space was available. You can't get too overboard on one concept because you would have to erase it and put more information up. But in this new environment, the white boards are so huge. I have more opportunities to be creative in my assignments. I can write as much as I want. I can draw pictures as big as I want. There are mobile

white boards I and the students can use too. I can also type my notes on the computer and project it on to the white board rather than always writing on the board."

Appearance. "It gives more freedom on how you can structure the furniture. We can write on the two fixed surfaces on the walls and on the mobile white boards. You essentially have things to look at on all four walls. In the older classrooms, everyone is looking in one direction. That's limiting. The more work space the classroom has and the more you can move it around, the better off I think it is. Students can be pointed in all kinds of directions and still be able to see what's going on when you use the white boards. This makes the classroom layout functional and versatile.

Classroom Mood. "If you have more white boards then the teacher can plan their lessons better. A teacher has a lot of working space to write and project on to the white board. Also, sometimes I'll remember that I forgot to add something to the PowerPoint. This is easy to fix on the white board. I can annotate. I'll write what I left out on presentation on the white board. I like that I can do that. It makes it easier for me and my students."

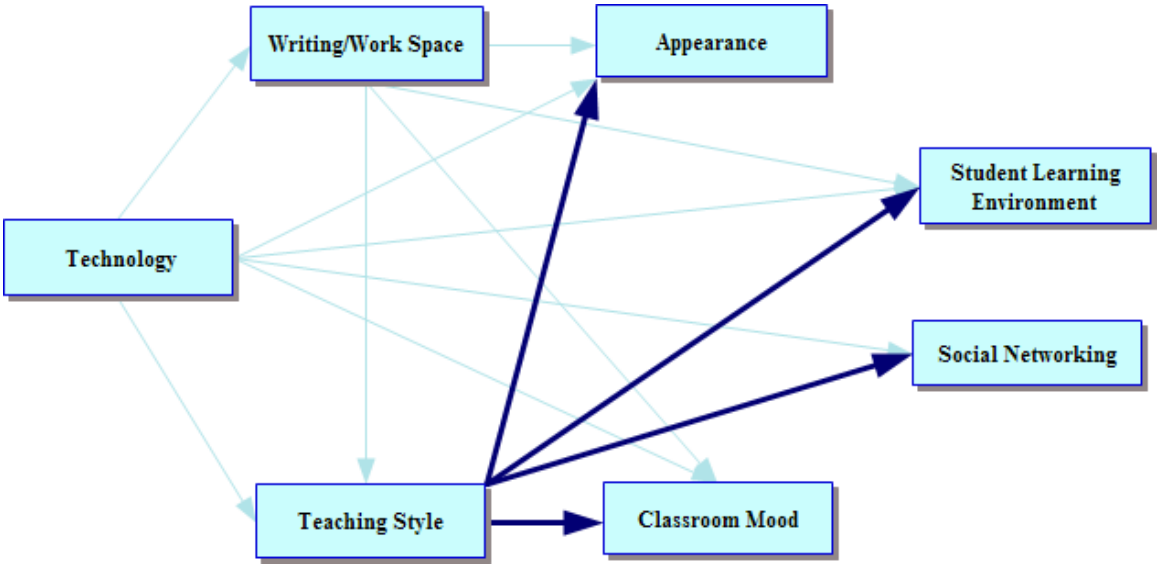
Student Learning Environment. "White boards impact the learning environment. It's not just the instructor writing on the white board all the time. The students work and present from the white boards too. The white boards bring students together. Students can think through ideas on the white board. They have the freedom to write at any location of the room. The white boards create a positive image of the classroom. When I went to the new generation of learning classroom the first time, I was like 'Wow I have all these to teach.' I believe that all the students have the same feeling. They don't always know how it's going to be used. As a teacher, I know how to use the

white boards. I use them a lot for visual learning. The more visible space you have and the more you can move around to get bring it close to the students, the students will be able to understand the material better."

Teaching Style Influences…

Faculty reported Teaching Style as a secondary driver in their perception of the new generation of learning classrooms. Teaching Style had a direct influence on all elements of this learning environment except Technology and Writing/Work Space as shown in Illustration 4.15.

Illustration 4.15: Teaching Style



Appearance. "My teaching style impacts the classroom layout. Nothing in the classroom is going to change my teaching style. My teaching style is first. I can change the configuration to meet my teaching style. I will decide if I want to change the layout. I'll determine if I move the tables in one direction or against the wall. Some teachers are very flexible. They will teach however the room is laid out. I think in the past the layout

influenced the teaching style because you were bound to the fixed layout. It is hard to move around desks and chairs in a traditional classroom, so you just left the classroom layout like that.

Classroom Mood. "Teaching style sets the tone of the classroom. Instructors influence the ups and downs of the classroom. An example would be the excitement in the room. If the instructors are excited, then the students become excited too. If the teacher is very distant, then the tone of the classroom would be cold. If the teacher laughs often or shares the information with the student, then it would be a little warmer. The students would feel comfortable with the instructor. You can tell the mood of the classroom by looking at the students faces. Sometimes if the teacher will not be energetic or engaged, then the students look like they are in a comatose state of mind. The instructor and their teaching style engage students in the thinking process and communicating of the classroom."

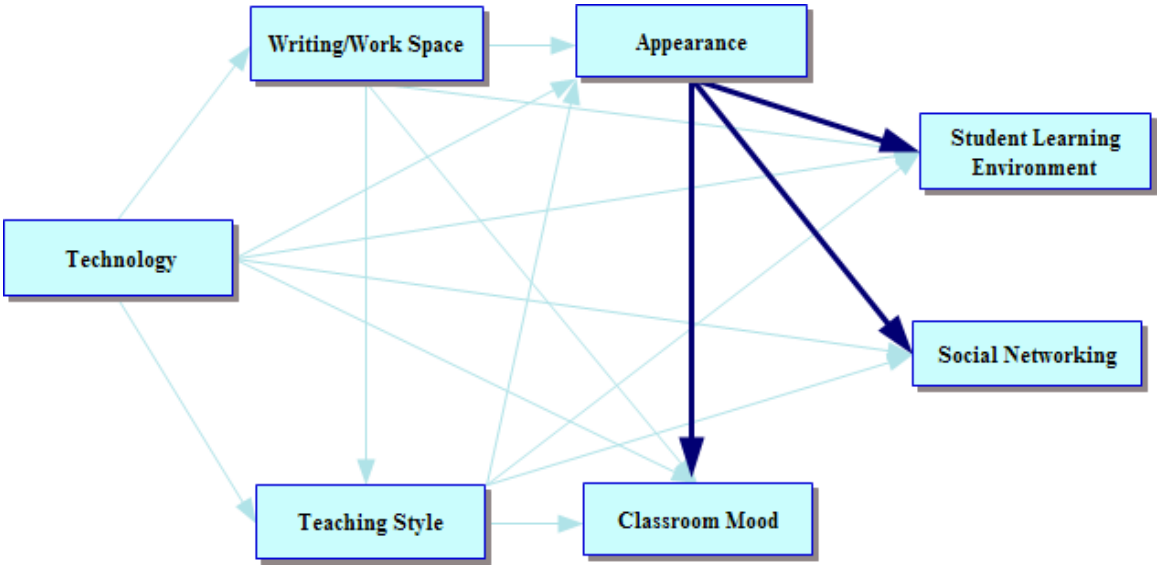
Student Learning Environment. "Teaching style impacts the classroom environment. The teaching style is who I am. It is part of my personality. My teaching style is in your face. I am going to do anything to engage the students during class time. I do a happy dance for heaven sake. My teaching style is energizing to the learning environment. Depending on how you teach, the way you use technology or lectures or videos, the environment in the room is driven by your style. I pass by classes sometimes and you can see the students are just zombies. I'm hoping my students are not like that. My guess is that sometimes when you get new faculty, they don't know how to get students interacted, how to get activities to help them focus. That has a big impact on classroom learning environment."

Social Networking. "Teaching style influences social networking. If the teacher wants the students to communicate with each other, there will be more social networking. I switch the sitting arrangement between the students. I don't want them to get too comfortable with each other. I want them to meet and know everyone in the classroom. My teaching style shows the students that it is okay to interact with each other. I think the instructor has powerful role making that happen or not. The expectation is that you want your students to be active and social network. If I set up a classroom straight lecture and I don't give them a chance to get together they only network when they have their first two minutes before class begins. Not everyone comes ahead of time. I provide them with many opportunities, so they can know each other. I want them to feel comfortable learning."

Appearance Influences…

Faculty reported Appearance as the Circulators/Pivots/? driver in their perception on the new generation of learning classrooms. Appearance had a direct influence on the elements of Technology, Work Space, and Teaching Style as shown in Illustration 4.16. Circulators/Pivots/? indicate a position in the middle of the system and a possible pivot point.

Illustration 4.16: Appearance



Classroom Mood. "The classroom appearance impacts the way the students will feel, especially if there will be energy in the room. The tables are arranged for group work, and there is enough space between tables. If they are too close together people will feel like they are on top of each other and it's uncomfortable. If they are too far apart, then there is no sense of togetherness either. The students are able to see the big white boards on the wall and the mobile whiteboards. They have access to the computers that are placed on their tables. The layout makes the students happy to work in this environment.

Student Learning Environment. "The classroom appearance impacts the learning environment. The class is a moveable and flexible environment. You can move the tables, chairs, and white boards around the class. Students find each other more approachable as they collaborate on work assignments. In a traditional classroom, students would be stuck in rows with hardly a chance to do group activities. The

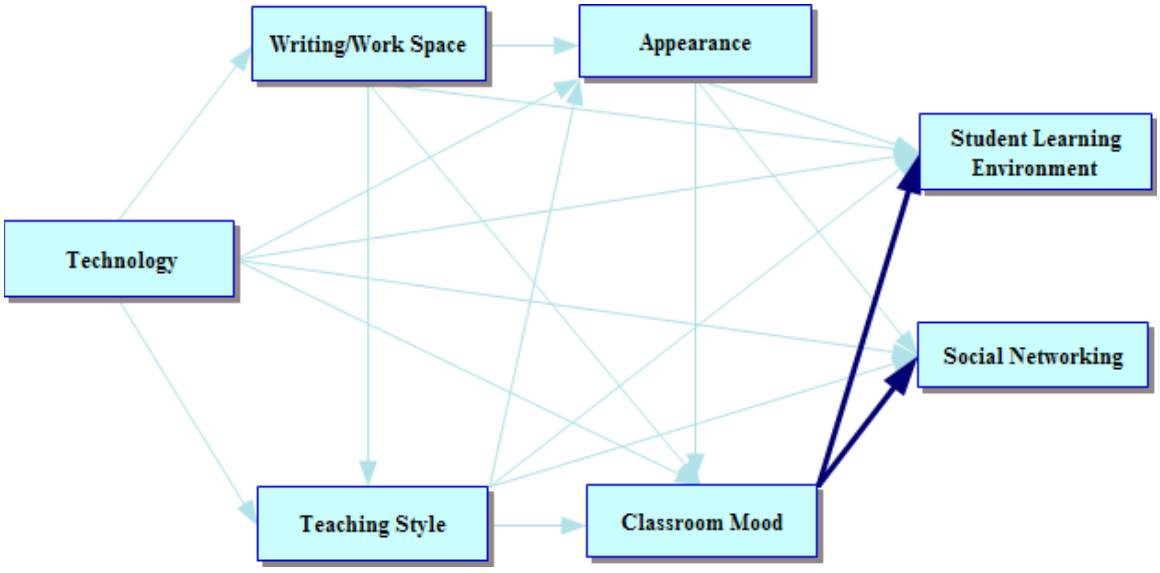
expectation would be that they will sit while the instructor feeds them information. They will not have the opportunity to participate as they could in a new generation of learning classroom."

Social Networking. "The classroom appearance impacts the social networking. Student interaction is a result of the sitting arrangement. Since they already sit in groups, they are more likely to network socially. Students will tend to sit with two to four other students. If the students are in tables closer together, they are more likely to chat. I don't mind a certain amount of chatting as long as they get their work done. I encourage them to work together and talk about issues. The first two weeks I devoted to building the relationship between the students and myself. One of the things that I find is that students create study buddies. They help each other in and outside of class. The layout is very conducive as it influences the social networking. The more flexibility you have in terms of tables and chairs and wheels on things, the more opportunities you have for creativity and flexibility and networking. The environment allows students to move around. They feel they have space through out the classroom to work with their peers."

Classroom Mood Influences…

Faculty reported Classroom Mood as the secondary outcome in their perception on the new generation of learning classrooms. Classroom Mood had a direct influence on Student Learning Environment and Social Networking as shown in Illustration 4.17.

Illustration 4.17: Classroom Mood



Student Learning Environment. "If the classroom mood is very sterile and unfriendly, the students are going to be more intimidated. The instructor will not be approachable to them. They will be disengaged. These students will not participate in class and may not communicate with their peers. Obviously, they will not feel comfortable in the classroom environment."

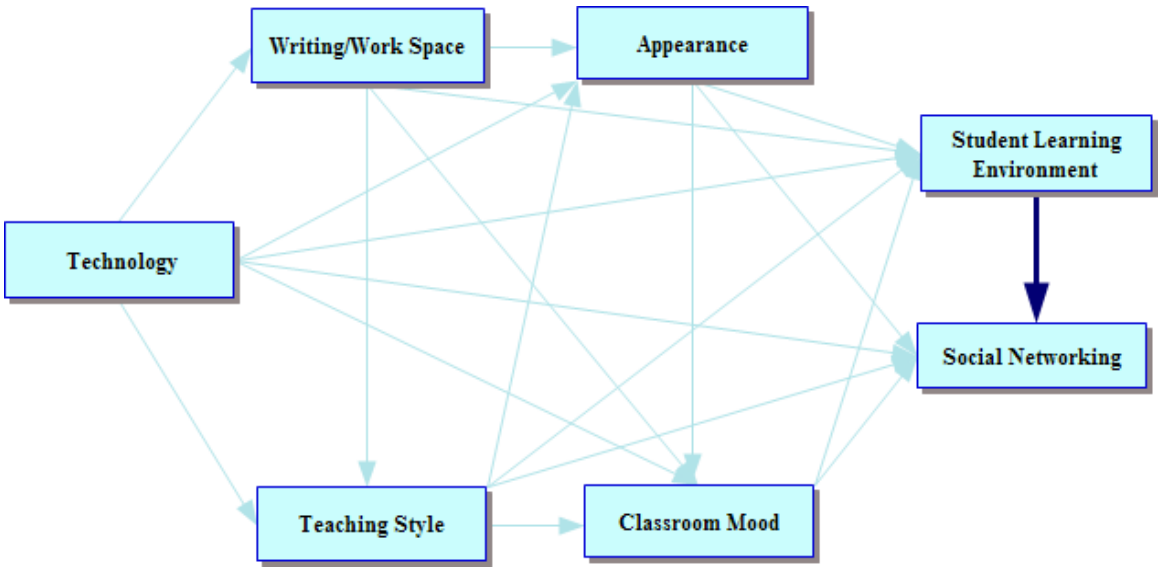
"Classroom mood impacts atmosphere. If it is hot, then students are just dying. If it is too cold, it's the other extreme. When it is comfortable, the students are fine. One time I was in a room that was so hot, I had to walk out. I felt so sorry for my students. I couldn't even think straight. I couldn't even imagine how they were taking notes. I left them there for 2 minutes. I gave them an activity, so I could take a breath outside. I had to walk out. The temperature in classroom was so stifling. If the instructor and students are not comfortable, they are not going to be ready to teach and learn."

Social Networking. "The teacher can create certain conditions in the classroom that will cause students to chat a lot, become distracted with the laptops, or be engaged in class discussion. If students have a lot of free time, and they are not working with group, they will do something to fill up their time. Students will surf the Web and start chatting with their peers, so they won't get board."

Student Learning Environment Influences…

Faculty reported Student Learning Environment as a secondary outcome in their perception of the new generation of learning classrooms. Student Learning Environment had a direct influence on Social Networking as shown in Illustration 4.18.

Illustration 4.18: Student Learning Environment



Social Networking. "It is a requirement in my class that students work together. They enjoy sharing information and researching in groups. Social networking starts with the environment and creating situations where that can happen. Social networking won't

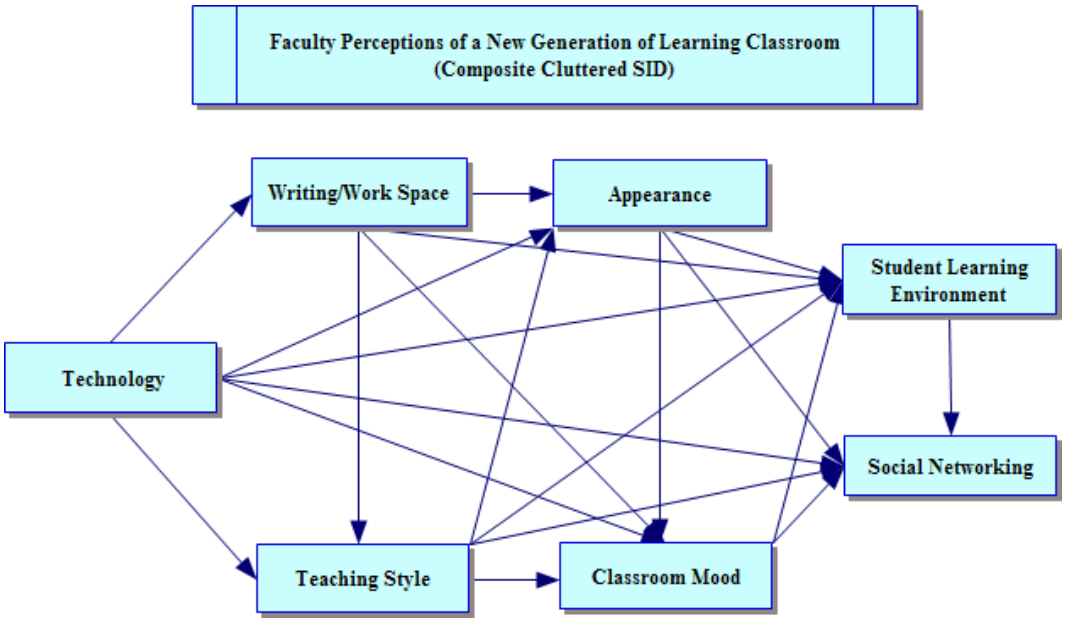
happen by itself. The environment allows for students to behave in certain ways that involve interacting and do activities. The environment must feel positive and comfortable for students to work with each other and to want to talk to one another. They will want to know each other on a deeper level. If you are really uncomfortable, it's not going to open up opportunities for students to be as creative with each other."

System Influence Diagram (SID)

The System Influence Diagram (SID) is a visual representation of an entire system of influences and outcomes. It is created from the information presented in the Interrelationship Diagram (IRD) as shown in Tables 4.11 and 4.12. In developing the SID, all of the affinities were arranged according to the Tentative SID Assignment Table (Table 4.13) and was created with flow chart or "mind mapping" software program known as Inspiration. The investigator began by placing the affinities on the screen in descending order of delta (primary drivers to primary outcomes). Each affinity name was placed in a square. Then, the investigator drew connections (arrows) between each affinity in the direction of the relationship as represented in the IRD. This is shown in this section: Cluttered SID (Illustration 4.19).

Composite Cluttered SID.

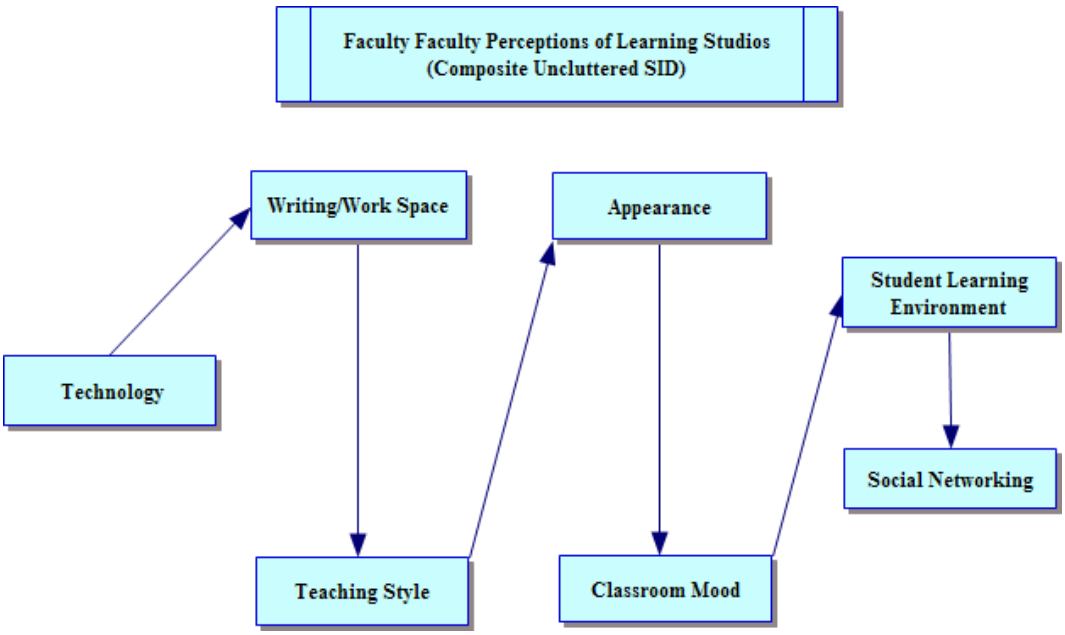
Illustration 4.19: Faculty's Perception of a New Generation of Learning Classrooms (Composite Cluttered SID)



Composite Uncluttered SID.

By removing redundant links, an uncluttered SID was developed. The resulting SID is shown in Illustration 4.20.

Illustration 4.20: Faculty's Perception of New Generation of Learning Classroom (Composite Uncluttered SID)

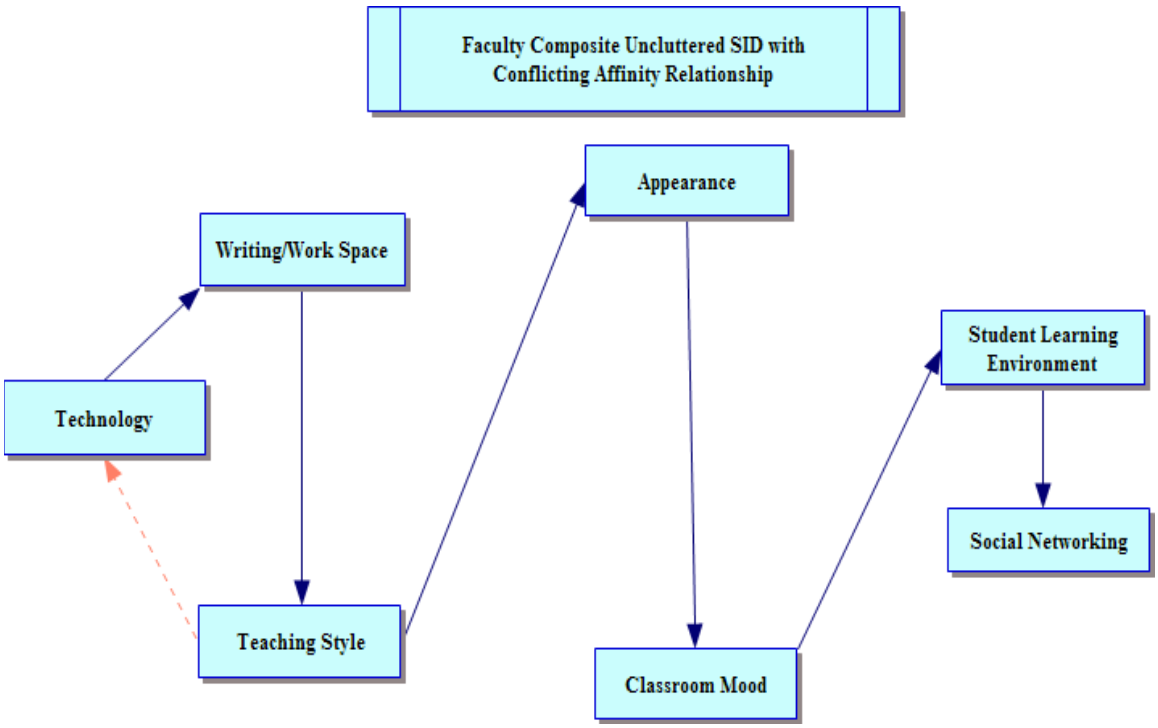


The investigator examined the conflicting relationships that were not used in the Interrelationship Diagram (IRD) to create the System Influence Diagram (SID). Table 4:10 showed there was a conflict with the following affinities:

- Writing/Work Space (2) < Teaching Style (4)
- Writing/Work Space (2) > Teaching Style (4)

Since the IRD only allows for one possibility, the affinity relationship with the highest frequency (2 > 4) was selected. To resolve the conflict, the investigator examined the affinity relationship that was not used (2 < 4). This relationship was added to the Uncluttered SID to create a feedback loop as shown in Illustration 4.21.

Illustration 4.21: Faculty's Composite Uncluttered SID with Conflicting Affinity Relationships

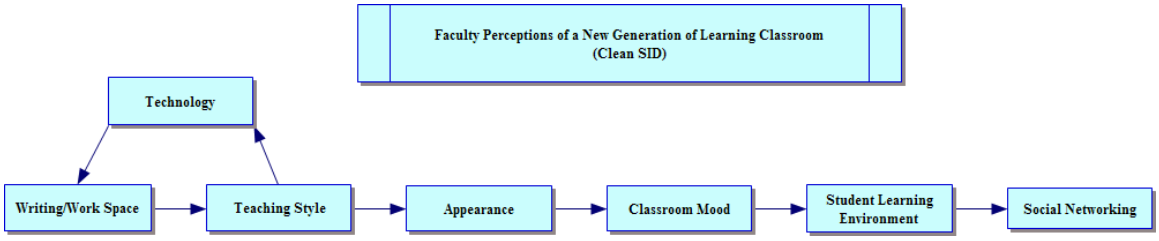


The dashed arrow was added from Teaching Style to Technology. This loop allowed for both relationships to be present:

- Writing/Work Space (2) < Teaching Style (4)
- Writing/Work Space (2) > Teaching Style (4)

Next, the investigator created a Clean SID which is shown in Illustration 4.22.

Illustration 4.22: Faculty's Perception of a New Generation of Learning Classroom (Clean SID)



SUMMARY

This chapter presented the results of the Millennial student and faculty perceptions of the new generation of learning classrooms in this study. During the focus group, both groups identified the following affinities:

Millennial Students

- Technology
- Appearance
- Climate
- Teaching Style
- Learning Environment
- Emotions
- Group Assignments.

Faculty

- Technology
- Writing/Work Space
- Teaching Style
- Appearance
- Classroom Mood
- Student Learning Environment
- Social Networking

These affinities were used to generate an interview protocol for individual interviews. The data from the interviews were organized by axial coding, theoretical coding, and System Influence Diagrams (SID). This allowed the investigator to obtain descriptions of each person's perceptions of the new generation of learning classrooms.

Composite descriptions were created for both groups, and used to create a composite System Influence Diagram (SID) is also known as a mindmap. As a result, four of the five research questions were answered.

1. What are the perceptions of a new generation of learning classrooms for Millennial students?
2. How do Millennial students relate to a new generation of learning classrooms?
3. What are the perceptions of a new generation of learning classrooms for faculty?
4. How do faculty relate to a new generation of learning classrooms?

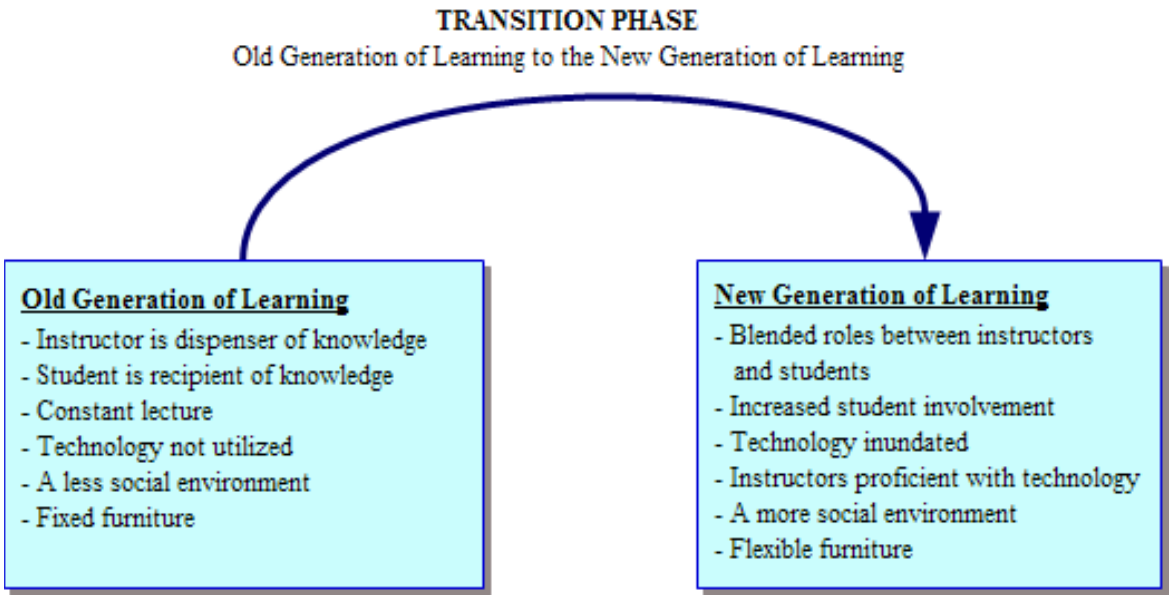
Interpretation of the affinities and mindmaps from the Millennial students and faculty is discussed in Chapter V. The explanation presented in the next chapter will answer the last research question (research question number five): How do Millennial students' and faculty's perceptions on the new generational of learning classrooms compare?

Chapter V: INTERPRETATIONS

STATEMENT OF THE PROBLEM

Prensky (2001) expressed that educational institutions continue to focus on the old generation of learning that is time-bound, place-bound, efficiency-bound, and role-bound. They assume that today's learners are the same as they have always been, and that the same methods that worked for them when they were students will work for their students now. However, the Millennial generation has different characteristics and learning expectations in comparison to previous generations, which was discussed in Chapter 2. Oblinger (2006a) expressed that the Millennials are forced to work against their social nature, which involves "active, participatory, experiential learning" (Oblinger, 2006a, p. 1.1). Since the Millennials' way of thinking, communicating, and learning has been shaped by technology (O'Bannon, 2001; Levin & Arafeh, 2002), their enrollment in higher education will create a challenge for educators and administrators "to identify the changes that will be required to cater to a new technologically savvy generation of students" (Dwyer & Pospisil, 2004, p.194). Furthermore, postsecondary institutions will encounter challenges during the transition phase from transforming an old generation of learning into a new generation of learning as shown in Illustration 5.01.

Illustration 5.01: Transition from the Old Generation of Learning to the New Generation of Learning



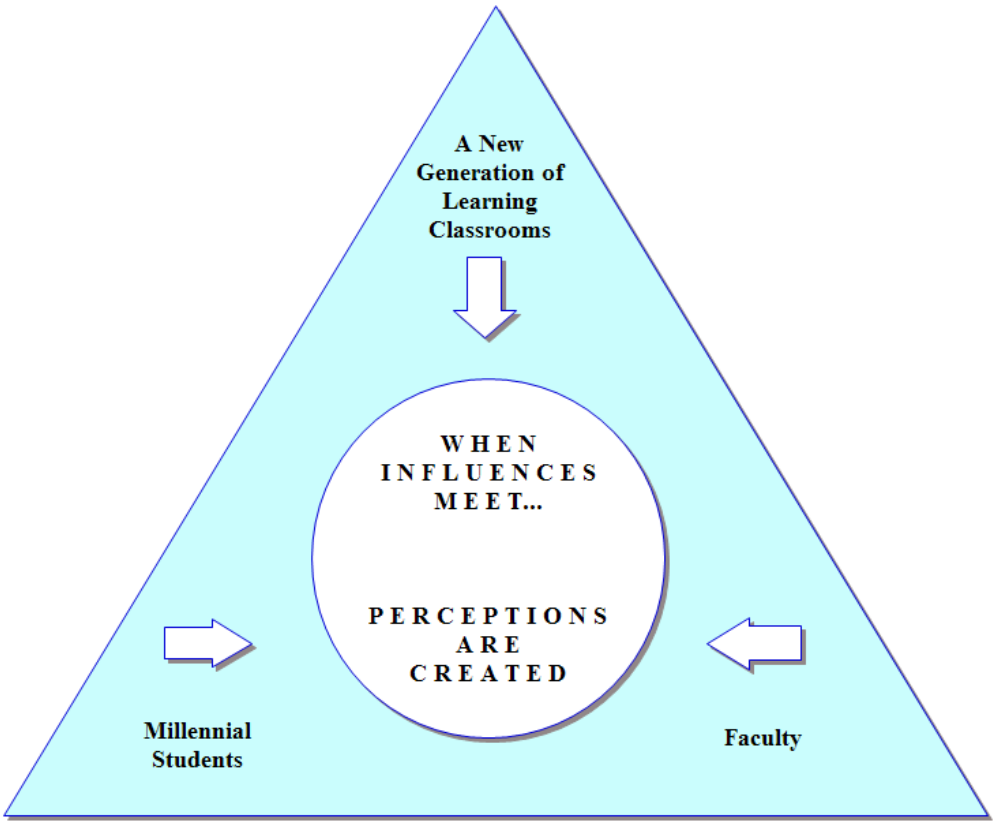
Source: Acevedo (2007b)

This chapter provides an overview of the Statement of the Problem, Purpose of the Study and Research Questions. Also, Chapter V provides a detailed discussion on Affinity Comparisons, Viewpoint Comparisons, Tour of the System, Theoretical Framework, Hypotheses, Implications, and Recommendations for Further Research. This chapter will address the last research question (research question number five): How do the Millennial students' and faculty's perceptions on the new generational of learning classrooms compare?

PURPOSE OF THE STUDY

The purpose of the study is to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms. Illustration 5.02 is a graphic which shows the purpose of the study.

Illustration 5.02: Image of Qualitative Research Study



Source: Acevedo (2007b)

A second purpose is to extend current theory and empirical knowledge about the interaction of Millennial students and instructors in a new generation of learning. A third purpose is to generate new hypotheses and identify additional research which is necessary

for a better understanding about the groups' perceptions of the new generation of learning classrooms.

RESEARCH QUESTIONS

The following research questions for this qualitative study are:

1. What are the perceptions of a new generation of learning classrooms by Millennial students?
2. How do Millennial students relate to a new generation of learning classrooms?
3. What are the perceptions of a new generation of learning classrooms by faculty?
4. How do faculty relate to a new generation of learning classrooms?
5. How do Millennial students' and faculty's perceptions on the new generation of learning classrooms compare?

AFFINITY COMPARISONS – RESEARCH QUESTION 5

Both Millennial students and faculty participants identified seven affinities that were significant in their perception of the new generation of learning classrooms. Millennial students identified the following affinities: Technology, Appearance, Climate, Teaching Style, Learning Environment, and Group Assignments. Faculty identified similar affinities: Technology, Writing/Work Space, Teaching Style, Appearance, Classroom Mood, Student Learning Environment, and Social Networking. These are shown in Illustration 5.03.

Illustration 5.03: Millennial Students' and Faculty's Affinities

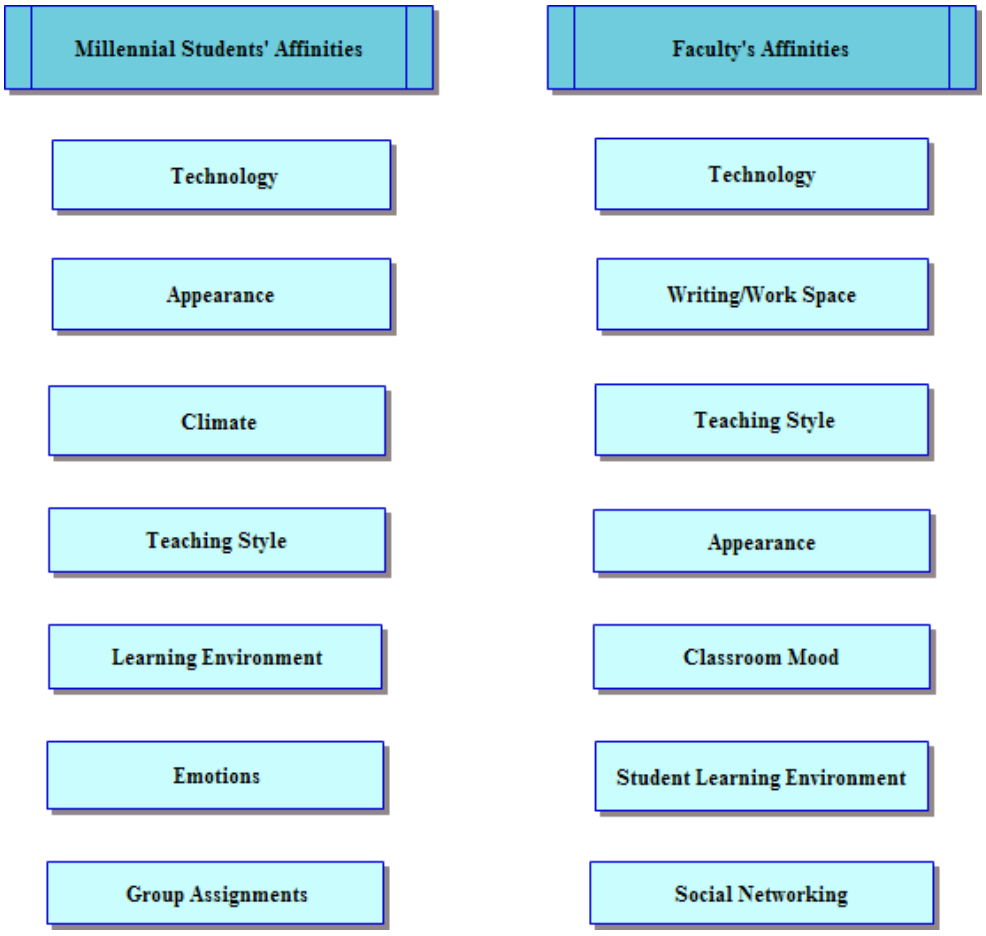
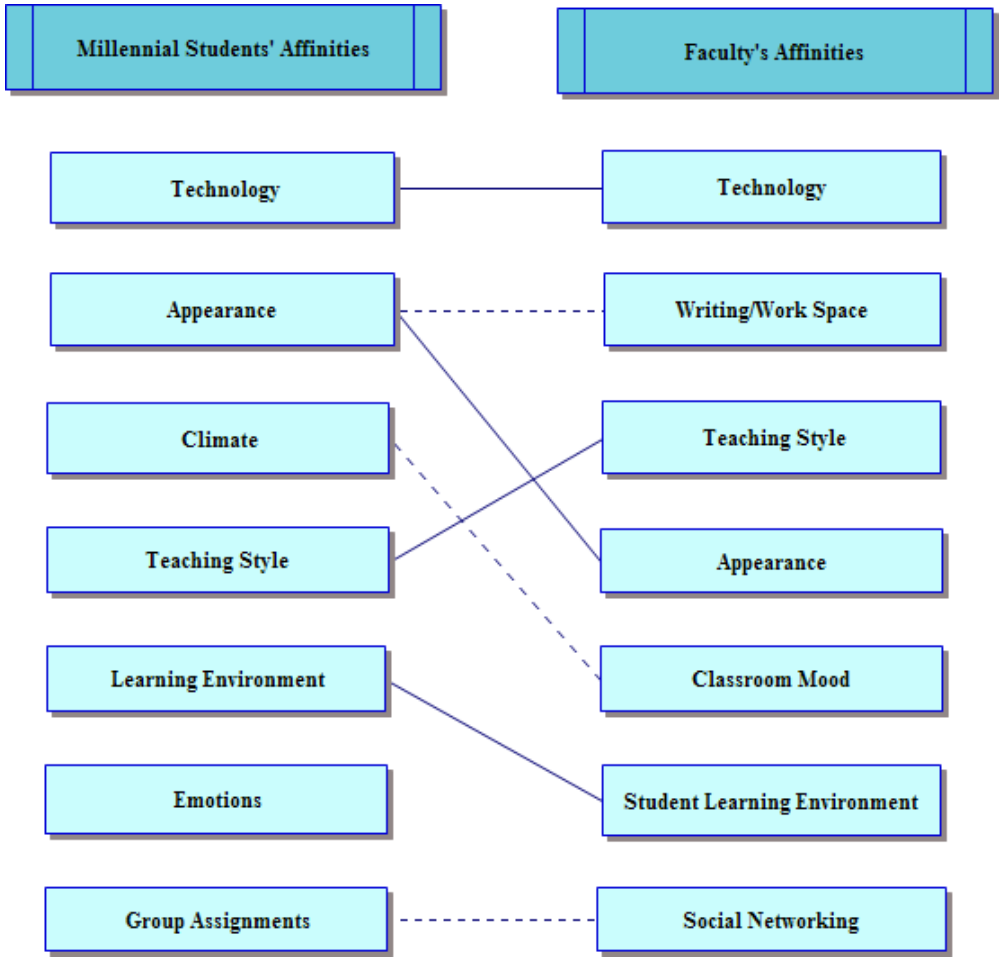


Illustration 5.04 provides a visual image that connects the affinities that were identified by both groups. This illustration uses two different types of lines to link the affinities. The defined line connects affinities that have the same name: Technology, Appearance, Teaching Style, and Learning Environment. The dotted line indicates that the affinities have similarities even though the names are different. They are: (1) Appearance and Writing/Work Space; (2) Climate and Classroom Mood; and (3) Group Assignments and Social Networking. Also, the Millennial students identified Emotions as an affinity. This was not identified by the faculty participants.

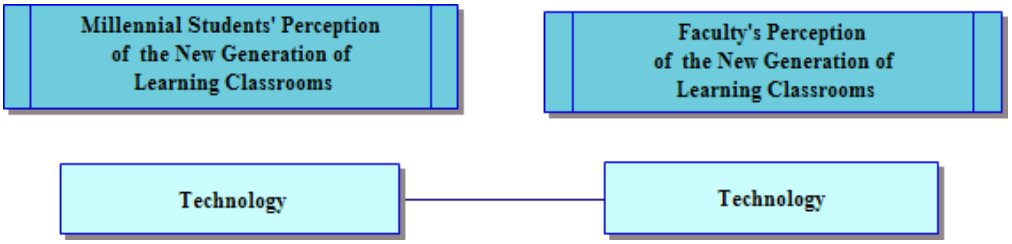
Illustration 5.04: Affinity Comparisons between Millennial Students and Faculty



Technology

The Millennial students and faculty identified Technology as a critical affinity in their perceptions of the new generation of learning classrooms. This is shown in Illustration 5.05.

Illustration 5.05: Technology Affinity Comparison



The Millennial students identified Technology as the laptops that were available in the new generation of learning classrooms. They believed that this amenity made their learning environment convenient. They typed their notes and conducted online research in class. This method was preferred rather than handwriting their class notes and researching topics at the library. If the course required specific software and the Millennial students did not personally own it, they were not burdened with purchasing the program or waiting for an available computer at the lab. Depending on certain new generation of learning classrooms, students had to share the limited number of laptops. This inconvenienced the technologically dependent Millennial student. They found it unfair when they did not have equal access to laptops. Additionally, these students expressed that the compact size of the laptops increased interaction among them. They were able to see their peers at eye level. Thus, the Millennial students in this study had a greater opportunity to communicate with their classmates sitting near them. Historically, they found it a challenge to communicate with their peers since the bulky desktop computers blocked their view from seeing other students.

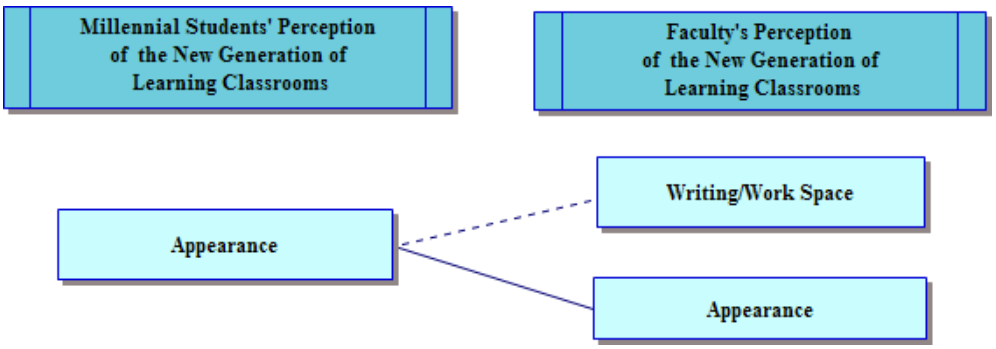
The faculty participants identified more items as technology in the new generation of learning classrooms in comparison to the Millennial students. These items were computer laptops, Microsoft programs, Web based programs (i.e. My Math Lab), and the

digital overhead projection system. The faculty participants expressed that these amenities have enhanced instruction in the classroom. They were able to quickly and simultaneously research topics with their students by utilizing specific Web sites (Wikipedia, Google, Ask.Com, and Youtube). They also stated that technology had increased student interaction. Since the faculty considered the Millennial students technologically savvy, the instructors stated that the Millennials taught older students to become comfortable with technology. Thus, the younger students and the older students were able to build relationships. The faculty participants stated that technology can have a positive influence and a negative distraction in the new generation of learning classrooms. They found that the laptops made it easier for students to email, surf the Web, and chat with friends during class time. Thus, some faculty participants informed students when laptops would and would not be utilized. Another concern for faculty was "playing policeman" in the new learning environment. The faculty participants said that they felt they were accountable for every laptop in their classroom. Therefore, they desired to seek alternatives to improve technology security.

Appearance

The Millennial students and faculty considered Appearance as a critical affinity in their perception of the new generation of learning classrooms. This is shown in Illustration 5.06.

Illustration 5.06: Appearance Affinity Comparison



The Millennial students in this study referred to the Appearance as the classroom layout. They expressed that the new generation of learning classroom appearance gave the impression that they would participate in a teamwork environment. They stated, "You feel that you are actually going to do something instead of just watch the instructor." The Millennial students emphasized that the white boards, tables, and classroom layout encouraged a team oriented atmosphere. The mobile white boards, which could be glided across the classroom, offered students a designated space to write and discuss their group ideas. The tables were designed for a group of four students to sit and work together. The classroom layout allowed the Millennial students to have enough walking and work space between tables. Additionally, the students valued the lighting, colors and the chairs in the new generation of learning classrooms. They were able to adjust the amount of lighting; the earthy colored walls created an inviting environment for them; and the ergonomic chairs provided comfort in their learning environment.

The faculty participants also referred to the appearance as the classroom layout. They shared that the new generation of learning classrooms promotes group work among students. The movable furniture (desks, chairs, white boards) could be easily glided to

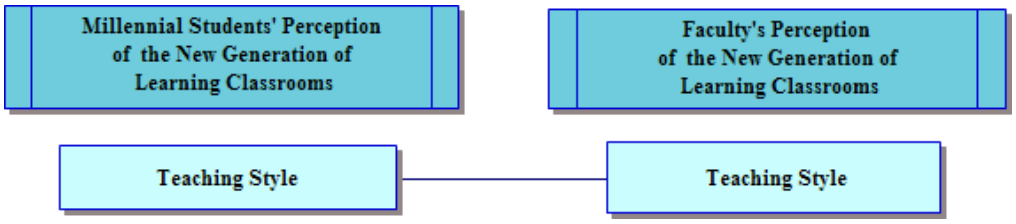
any location of the room. Faculty felt the flexibility of the classroom allowed them to access any student in the classroom. They stated that the layout of the traditional classrooms did not make it easy to personally interact with students since they were limited to walking mostly in front of the classroom. Furthermore, the faculty participants articulated that they were impressed with the modern design of the furniture and earthy colored walls in the classroom. They shared that the "learner has been taken under consideration."

Illustration 5.06 shows a dotted line linking the affinities Appearance and Writing/Work Space. The faculty referred to the Writing/Work Space as the white boards in the new generation of learning classrooms. The Millennial students did not identify Writing/Work Space as a separate affinity. However, the white boards were a critical component in the faculty perspective since they identified it a separate affinity. The faculty shared what it meant to have plenty of writing/work space for students and themselves throughout the classroom. They agreed with the Millennial students that the white boards encouraged a team oriented environment atmosphere. Furthermore, the instructors appreciated that they were able to address specific questions from groups on the mobile white boards. They stated, "I don't have to go to the front of the classroom to use the big white board" and disrupt the brainstorming sessions which occur among the groups. Furthermore, the faculty stated they were able to project their presentation on to the white boards rather than on to the pull down screens found in traditional classrooms. They expressed, "The presentation has a nice clean look. It's great for students to see their work in that professional edge. They don't have to worry about pulling down screen."

Teaching Style

The Millennial students and faculty identified Teaching Style as a critical affinity in their perception of the new generation of learning classrooms. This is shown in Illustration 5.07.

Illustration 5.07: Teaching Style Affinity Comparison



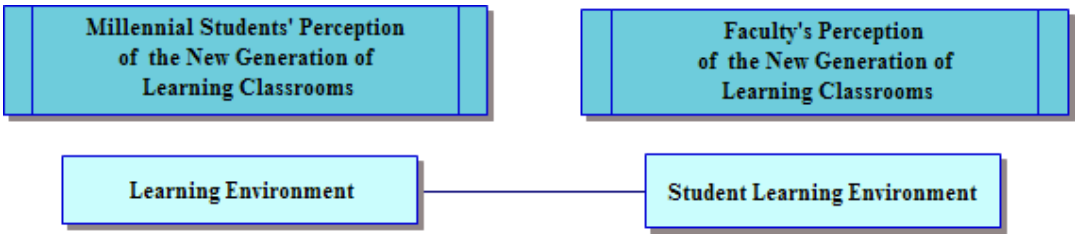
The Millennial students described Teaching Style as the instructors' method for implementing instruction in the classroom. The Millennial students believed that the layout of the new generation of learning classrooms influenced the instructors' teaching style. Since the students expressed that these classrooms were set up for group work, they found that most instructors had adjusted their teaching to include more team oriented assignments. When faculty members modified their teaching style to the new learning environment, the Millennial students found the instructor more approachable. These students appreciated when instructors lectured less and invited students to participate in the teaching process. The Millennials were encouraged to take ownership of their learning when working on group assignments. They found that the instructor allowed the group to determine their own direction on projects. They also shared that the instructors who were not comfortable with technology were less likely to include the use of laptops in their teaching styles.

In consideration of the Millennial student characteristics, some faculty participants expressed that their teaching style had changed. They encouraged students to participate and encourage students to use the laptops for Internet research. Also, they become a mentor and guide in the classroom. There were other faculty participants who expressed that a change in environment would not alter their teaching style. They stated, "My teaching style is a style I have had for awhile now. I do the same thing. I don't change the way I do things."

Learning Environment

The Millennial students and faculty identified the Learning Environment as a critical affinity in their perception of the new generation of learning classrooms. This is shown in Illustration 5.08

Illustration 5.08: Learning Environment Affinity Comparison



The Millennial students identified the Learning Environment as to how the new classroom setting impacted student learning with their peers. The Millennial students explained that their learning environment in the new generational of learning classrooms was a team oriented atmosphere. They were able to work with their peers on course assignments. Since the students were able to sit in groups with their peers, they appreciated that they could help each other understand the course. Even though they valued the accessibility of laptops, the Millennial students admitted that a technology

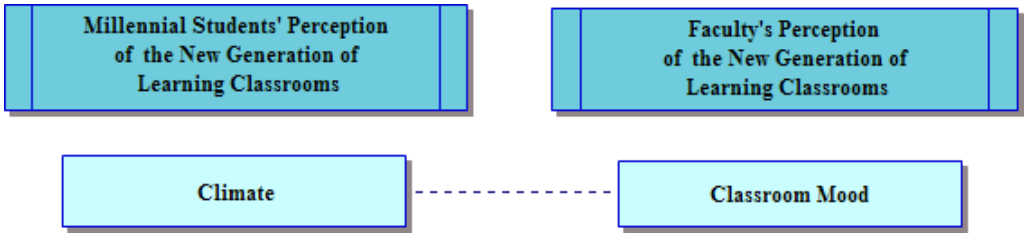
inundated and group setting environment can encourage distractions. They stated, “It’s disrespectful to use the laptop if it has nothing to do with the lesson.” Also, the Millennial students expressed that students tended to socialize more in a new generation of learning classroom, which could also be disruptive during class time,

The faculty referred to the Student Learning Environment as the degree to which the new generation of learning classroom layout impacted relationships in the classroom. They expressed that students were more likely to look out for another in this environment in comparison to a traditional classroom. The faculty participants believed that students who would not normally speak in class could find comfort in speaking within their group. Additionally, they emphasized that the new generation of learning classrooms created an informal environment. They stated, “I melt into the environment. I become one of them, and learn with them. My students call me by my first name. They are not scared to talk to me.”

Climate and Classroom Mood

The Millennial students and faculty separately identified the Climate and Classroom Mood as critical affinities in their perception of the new generation of learning classrooms. This is shown in Illustration 5.09. Climate referred to the classroom temperature, and the Classroom Mood referred to classroom temperature and the instructors’ tone. Since both affinities were comparable, a dotted line linked them together.

Illustration 5.09: Climate and Classroom Mood Affinity Comparison



The Millennial students and faculty expressed that the extreme hot and cold temperature could impact the learning environment. The students stated, "It makes it harder to concentrate and learn in the classroom." The faculty described it as a "white elephant" in the room where everybody notices it, but they do not verbally express their concern. Both groups agreed that the extreme climate could become a distraction. They become more focused on anticipating their departure from the room.

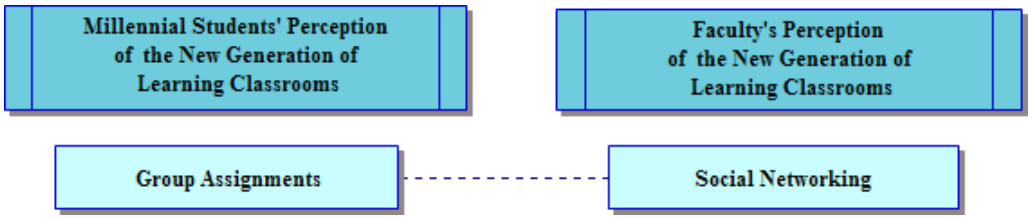
Furthermore, the faculty addressed the instructors' tone as a significant component in forming their perception of the new of generation classrooms. They stated, "The classroom tone has to do with how the instructor presents themselves to the students." The faculty participants believed that the instructors' tone would be reciprocated by the students. For instance, if faculty members decided to lecture at all times and not engage the students in class discussion, the Millennials would be less likely to find the instructor approachable. If faculty made it a priority to include the student characteristics into their teaching style, such as utilizing technology, then students may become more motivated to learn.

Group Assignments and Social Networking

The Millennial students and faculty separately identified the Group Assignments and Social Networking as critical affinities in their perceptions of the new generation of

learning classrooms. This is shown in Illustration 5.10. Group Assignments referred to students working together as teams in the new generation of learning classroom. Social Networking referred to the support system in the classroom and the online interaction among students. Since both affinities are comparable, a dotted line linked them together.

Illustration 5.10: Group Assignment and Social Networking Affinity Comparison



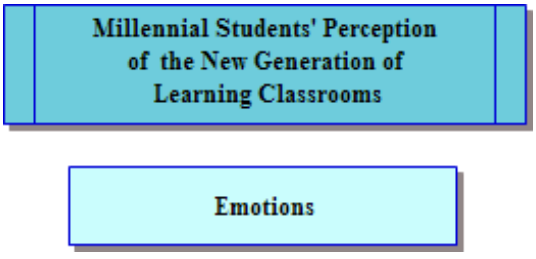
The Millennial students expressed the advantages and disadvantages of group assignments in the new generation of learning classrooms. An advantage for group assignments was that the classroom layout encouraged students to work collectively on assignments. They stated, "Someone can type. Someone can research online. Someone is always doing something in the group." As the Millennials worked together, they were able to create deeper friendship bonds. Thus, the constant interaction helped them make additional friends. The Millennials shared, "I am more prone to talk to my peers in this new learning environment rather than sitting in rows in a traditional classroom. You feel more of a close knit to the people sitting in front of you." A disadvantage with group assignments included the unequal contribution from students according to the Millennial students. Since their peers could be distracted with surfing the Internet and not working on the group assignment, theys were less likely to participate in group work. When students encountered this type of situation, they became motivated to work on their own.

The faculty participants also discussed the advantages and disadvantages of social networking in the new generation of learning classrooms. Advantages included that the Millennial students created a support system and shared information with each other. They believed students who continuously sat together formed stronger friendship bonds. The faculty expressed, "If you feel like someone is looking out for you, you are less likely to skip. Social networking is very important in a class where students struggle." If Millennial students were to form study groups and share their understanding of the course material, they are more likely to succeed. A disadvantage in the social networking environment was Millennial students who became distracted from the class as they chat online during class time. Since students had access to laptops, they had the opportunity to multitask in their learning environment. Faculty believed these students would email and chat online with friends while listening to the class discussion.

Emotions

The Millennial students identified Emotions as a critical affinity in their perception of the new generation of learning classrooms. This is shown in Illustration 5.11. Emotions referred to how the classrooms made students feel. The faculty participants did not mention emotions as an affinity.

Illustration 5.11: Emotions Affinity



The Millennial students shared their optimism toward the new generation of learning classrooms. They stated, "Students get excited to come to class. You come with the idea that you are going to talk to others. It changes the way you feel about going to class." The Millennial students favored a class that encouraged class discussion and participation. This type of setting created a secure environment for the students who felt that they were put on the spot by a question asked by the instructor. During these circumstances, the Millennial students found comfort that they could seek support from their peers sitting at their table. They became less motivated in a classroom that discouraged interaction among students, supported a sole lecture environment, promoted instructors as authoritative figures, and lacked technology.

Furthermore, the Millennial students became upset when their peers did not equally contribute to the assignment since they expected a team work environment in the classroom. The Millennials stated, "There are students who use the computers to check their emails when they are not suppose to during class. That makes me upset. I'm doing all this work, and they don't help me." Furthermore, the Millennial students are dissatisfied with the lack of laptops available for them.

> If there are not enough laptops for everybody, then it becomes annoying. You get frustrated. There needs to be a laptop for each student. If there isn't, then it becomes stressful, frustrating and unfair. One person can hog the laptop to look at their Myspace, email or pictures.

When there was an equal amount of laptops for each student in the classroom, the Millennial students found the learning environment to be positive.

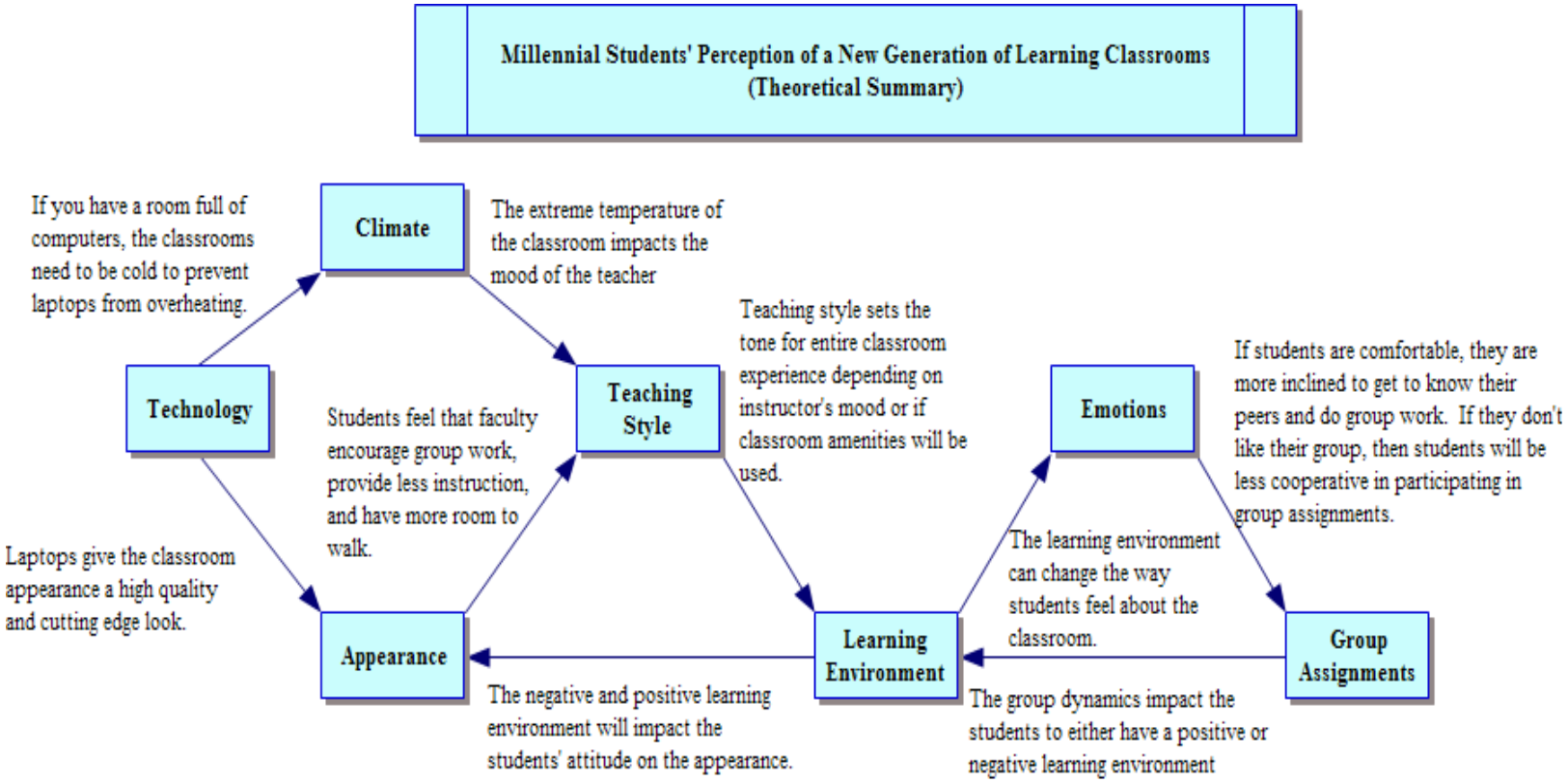
TOUR OF THE SYSTEM – RESEARCH QUESTION 5

The Millennial students' and faculty's perceptions of the new generation of learning classrooms can be described as a journey, which begins with technology and ends with group dynamics (group assignments and social networking). "The system can be traced as a path where each element influences the next. How the affinity is perceived, either positively or negatively, can influence the experience of the next affinity" (Northcutt & McCoy, 2004, p. 333). This section will give a tour of both systems to better understand the Millennial students' and faculty's perceptions of the new generation of learning classrooms. Within each tour, the investigator discusses the feedback loops that are part of each system.

Students

Illustration 5.12 depicts the Millennial students' perception on the new generation of learning classroom. The system shows the influence direction between affinities starting with the primary driver (Technology) which affects the secondary drivers (Appearance and Climate) and circulator/pivot/? driver (Teaching style). These relationships stimulate the secondary outcomes (Learning Environment and Emotions) and primary driver (Group Assignments).

Illustration 5.12: Millennial Students' Perception of the New Generation of Learning Classrooms (Theoretical Summary)



As the primary driver in the entire system, *Technology* had a major influence on all affinities. The Millennial students expressed that the availability of laptops gave the classroom a high quality and cutting edge *Appearance*. Thus, this amenity attracted this generation into the classroom. However, if there were not enough laptops for every student in the classroom, the appearance discouraged the Millennials. Their dependency on technology made the appearance look unfair since only a few students would have the opportunity to conduct online research or type notes during class. An additional concern for the Millennial students were the laptops lack of mobility. Two different cords (power and security) prevented students from moving the laptops around the classroom and created a wire tangle on top of the table.

Additionally, the Millennial students also believed the presence of technology could be the reason for the extreme cold *Climate* in the classroom. They expressed that this could be a strategy to prevent laptops from overheating. Even though it was cold frequently, the extreme hot climate created an uncomfortable atmosphere.

Furthermore, the Millennial students discussed that the appearance of the new generation of learning classrooms influenced most faculty members to transform their *Teaching Style* into a new age of teaching. This included encouraging students to learn from each other (team environment) and modifying the instructor's role to a mentor position rather than the authoritative figure. Therefore, the Millennial students found the teacher more approachable and more willing to create friendships with them. However, students explained that there were instructors whose teaching style did not match the new generation of learning classroom environment. If an instructor's teaching style was a constant lecture or if they were not technology literate, this method would set the tone in

the *Learning Environment*. Learning environment referred to how the new generation of learning classrooms impacted student learning with their peers.

Also, the Millennial students expressed the types of influences within their learning environment that could positively or negatively impact their *Emotions* toward the new generation of learning classrooms. Positive factors included no stress, comfort, motivation, and convenience. Millennial students found the group table setting less stressful in the classroom environment. If students did not know the answer to the questions asked by the instructor, they found comfort in figuring out the answer with their peers. The Millennial students found peer support present among their table groups. Additionally, they were motivated to learn in a learning environment that utilized laptops to make learning convenient. When students needed additional information on a topic that was discussed in class, they appreciated that they were able to quickly search online without raising their hand to ask for clarification. Students who were timid and who did not want to verbalize their questions found this strategy less stressful.

A negative emotion that emerged from the new generation of learning classrooms was frustration. The Millennial students' dependency on computers and the Internet for their every day affairs made them dissatisfied with the new generation of learning classrooms when only one laptop was available for each table. They found the lack of this amenity in the classroom inconvenienced them when they desired to research online and complete a course assignment. Additionally, the Millennial students admitted that the group arrangement and laptops could be a distraction for classroom learning. If students among the tables were chatting, it would be difficult for other students to concentrate on what the instructor was saying in class. Moreover, students would

become annoyed when their peers surfed the Web rather than contribute to a group assignment. Then, they would be less enthusiastic in working on *group assignments*. If the Millennial students got along with the peers sitting at the same table, they were motivated to collectively complete an assignment. Thus, the different group dynamics continuously impacted the *learning environment*.

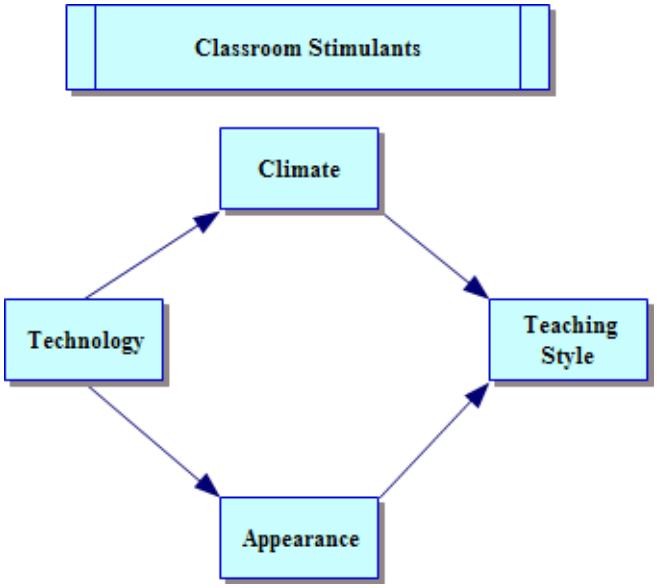
Zoom-In

Northcutt and McCoy (2004) stated "the next step in interpretation after describing the System Influence Diagram (SID) for a particular constituency is to look for opportunities to produce different views of the system. Zooming allowed the investigator to develop different views of a system," which included analyzing the feedback loops (p. 333). "Feedback loops consist of a system of least three affinities, each influencing the other directly or indirectly" (Northcutt & McCoy, 2004, p. 335). As part of the Interactive Qualitative Analysis (IQA) methodology, the investigator named the feedback loop. The Millennial Students' System of Influence Diagram (SID) shows two pathways of influence and two feedback loops.

Two Pathways of Influence.

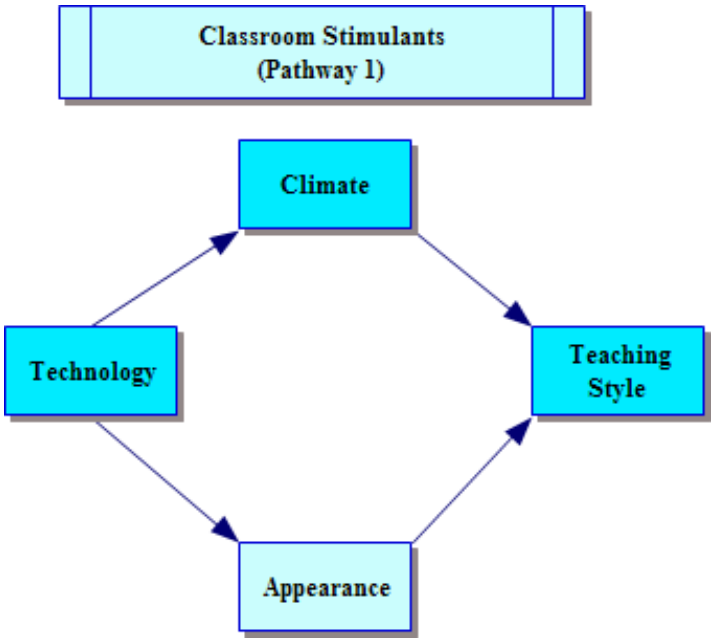
Within the Millennial students' System Influence Diagram (SID), four elements made up the Classroom Stimulants as shown in Illustration 5.13. These elements were Technology, Appearance, Climate, and Teaching style.

Illustration 5.13: Classroom Stimulants Overview



As a primary driver, *Technology* was the most influential element in the Millennial students' perception of the new generation of learning classrooms. This affinity was the catalyst for creating the two different paths of influence toward the teaching style. Each path represented ether a negative or positive experience. The first path, which is shown in Illustration 5.14, consisted the following affinities: Technology, Climate, and Teaching Style. The Millennial students identified this as a negative experience in the new generation of learning classrooms.

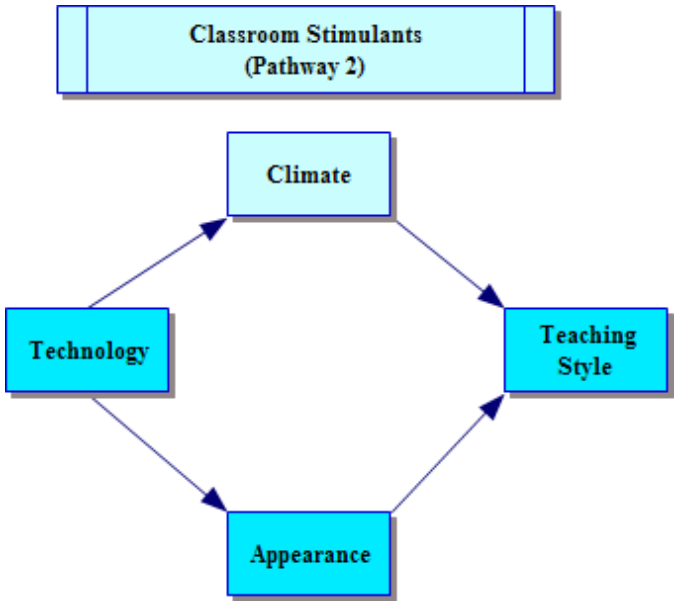
Illustration 5.14: Classroom Stimulants Pathway 1 (Negative)



Millennial students discussed that a room inundated with *Technology* needed a cold *Climate* to prevent laptops from overheating. They did not share a potential reason for the extreme hot temperature they experienced in the new generation of learning classrooms. Furthermore, the Millennial students believed that the extreme temperature climate would influence the instructor's *Teaching Style* in the classroom. If the classroom was either cold or hot, the students believed that the instructor would become "miserable and unhappy." As a result, the instructor could rush themselves to complete the course, which could make the student discontent.

The second path in the Classroom Stimulants involved Technology, Appearance, and Teaching Style as shown in Illustration 5.15. The Millennial students identified this as a positive experience in the new generation of learning classrooms.

Illustration 5.15: Classroom Stimulants Pathway 2 (Positive)



Millennial students shared that the *Technology* gave the new generation of learning classrooms a "cutting edge" and a "high quality" *Appearance* in comparison to the traditional classrooms. They described the new generation of learning classrooms as an environment that had a "sleek new look of everything" and "appropriate for the new age of teaching and technology." When the community college took the initiative to research their student population and identify the elements that were valued in the learning environment, the Millennial students responded with this statement: "The appearance makes me feel that the college invested in me."

Furthermore, the Millennial students also stated that the power and security cords attached to the laptops gave the classroom a fixed appearance. They shared, "The laptops have to be in one spot. We can't move any of them around to create more space on the

table." Thus, the students were not able to easily move the laptops from its original location. They desired a classroom with unlimited amounts of flexibility.

The Millennial students emphasized that the appearance of the new generation of learning classrooms gave the impression that the instructor would modify their *Teaching Style*. They expressed, "Technology gives the teacher another option on how to teach the classes." This included encouraging students to conduct online research and showing PowerPoint presentations, pictures, and videos in the class. Furthermore, the group sitting arrangement and laptops persuaded students that they would have the opportunity to direct their own learning experience and learn from their peers. They stated, "The instructor may not teach as much since we will probably be teaching ourselves. They accommodate to the appearance and encouraged a lot of group work."

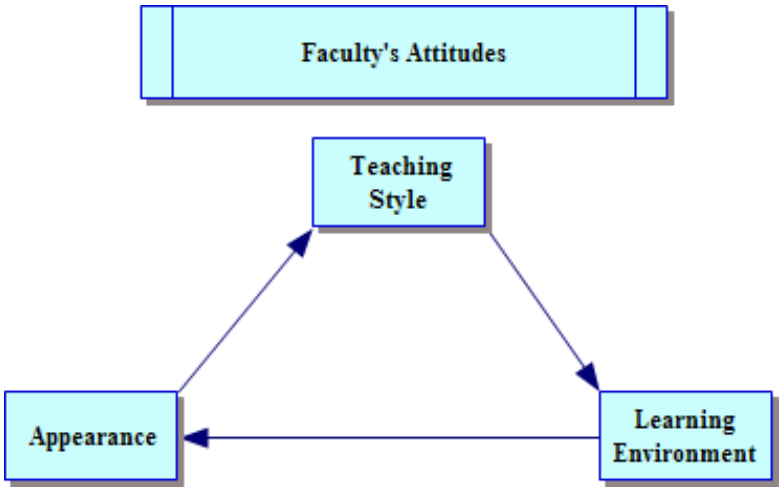
Feedback Loops.

Within the system, there were two feedback loops: (1) Faculty's Attitudes and (2) Millennial Students' Attitudes.

Instructor Attitudes

The Millennial students identified three elements that influenced the faculty's attitudes in the new generation of learning classrooms. These elements included Appearance, Teaching Style, and Learning Environment as shown in Illustration 5.16

Illustration 5.16: Faculty's Attitudes



The Millennial students expressed that the *Appearance* of the new generation of learning classrooms gave the expectation that group work would be performed among the students rather than watching the instructor lecture at all times. This impression was created by the group sitting arrangement in the classroom. Students stated:

> I like the design of the table. The tables are square in shape with curvy sides. It's on wheels, so you can move them around. Your body is molded to your spot on the table. Four people can sit at the table. The tables make it easier for people to work together.

The Millennial students believed that the appearance would influence the teaching style. For example, the classroom layout encouraged instructors to walk throughout the classroom more often rather then standing in one location (the front of the classroom). The Millennial students associated the instructor walking around the classroom to a "new age of teaching" while standing in front of the classroom was linked to an "archaic" teaching style. Thus, the millennial students believed that the appearance of the new

generation of learning classroom could influence the instructor's *Teaching Style* to change from an "archaic" teaching style to a "new age of teaching." The Millennial students stated other comparisons between the two different teaching styles. This is shown in Table 5.01

Table 5.01: Teaching Style Comparisons: A New Age of Teaching versus Archaic Teaching Style

A New Age of Teaching *(New Generation of Learning)*	***Versus* (v.s.)**	**Archaic Teaching Style** *(Old Generation of Learning)*
An instructor who continuously walks around the classroom	*v.s*	An instructor who continuously stands in front of the classroom
An instructor who encourages student involvement (example - class discussion and group work for subject understanding)	*v.s*	An instructor who continuously lectures
An instructor who uses technology for class assignments (example - online research)	*v.s*	An instructor who teaches out of the book and writes on the board
An instructor who is identified as a mentor	*v.s*	An instructor who is identified an authoritative, boss figure
An instructor who is up-to-date with technology	*v.s*	An instructor who is not proficient with technology
An instructor who gets to know the students	*v.s*	An instructor who does not create relationships with their students

The "new age of teaching" was described by the Millennial students as having the same characteristics to the "new generation of learning." In this new type of environment, the students found the instructor approachable. The Millennial students no longer saw the role of an instructor as an authority figure. Instead, the Millennial students identified

the instructor as a mentor. Therefore, the instructor's teaching style encouraged students to become an active participant in the classroom. Students were now encouraged to discover, construct, and understand knowledge rather than memorize and recall the information (Brown, 2005). This new generation of learning was not a one size fits all approach. Rather, learning was tailored to the habits and expectations of the student. Students learned by hands-on activity and group work.

The "archaic" teaching style described by the Millennial students has common characteristics to the "old generation of learning." This type of teaching style was common in higher education (Tapscott, 1998). Historically, individuals (instructors and students) who participated in the classroom experience had fixed roles. For instance, the instructor played the role of the expert, master, and commander. In this study, the Millennial students used the terms authoritative and boss. This population expressed that instructors who continuously stood in front of the classroom implemented an "archaic" teaching style. This teaching style encouraged instructors to transmit or broadcast knowledge through a one size fits all approach known as lectures (Skiba & Barton, 2006; Tapscott, 1988). The Millennial students stated a constant lecture format would be considered an archaic teaching style. Thus, the students "take the information they are 'taught' into active working memory" as they "tune in" to the teacher's lecture (Tapscott, 1988, p. 129). This "archaic" teaching style had been described as an authoritarian, top-down, teacher-centered, and a lecture-based model of education (Oblinger & Oblinger 2005; Tapscott, 1988). The Millennial students discussed that this teaching style, consequently, created a barrier between the instructor and students. The Millennial students in this study expressed the following concern:

> They have their old teaching methods that separate the teacher from the student. My instructor's method of teaching is that she is the professor, and we are the student. She knows and we don't know. Students don't want that top down approach to begin with like 'I know what needs to be learned.' We have a lot less respect for authority in that aspect. We have an attitude of teach me what you know, but I'll keep interrupting. This is how my generation feels about it. My professor keeps on going on and on and doesn't break to ask if we understand. The teaching style doesn't reflect the new generation of learning classrooms. They don't coincide together. She prefers that we always write, use no technology and be done. There are no slides, PowerPoint's, or things you can bring in to display things. She uses teaching styles from the 1970s and 2010 is almost here. If you have one professor that is only stuck on one style and when your environment changes or your technology improves and the professor remains the same, there is not really much learning going on. The students are on one level, and the professor on another. They are not meeting. I don't think the instructors understand. There are two different time periods in the classroom. You can take a teacher out of the traditional learning environment and put them in a new environment and they will still teach the same way. You are who you are."

If instructors continued to implement an "archaic" teaching style in a new generation of learning classroom, the Millennial students found a challenge in the *Learning Environment*. Prensky (2001) acknowledged that faculty members who focused on the old generation of learning assumed that learners were the same as they had always been, and that the same methods that worked for them when they were students work for their students now. This type of teaching was not conducive to the Millennial students. They preferred to navigate and investigate a topic for further understanding with the use of technology. Thus, when Millennial students were in a new generation of learning classroom with an instructor who had an "archaic" teaching style, the students preferred to be in a traditional classroom. They explained:

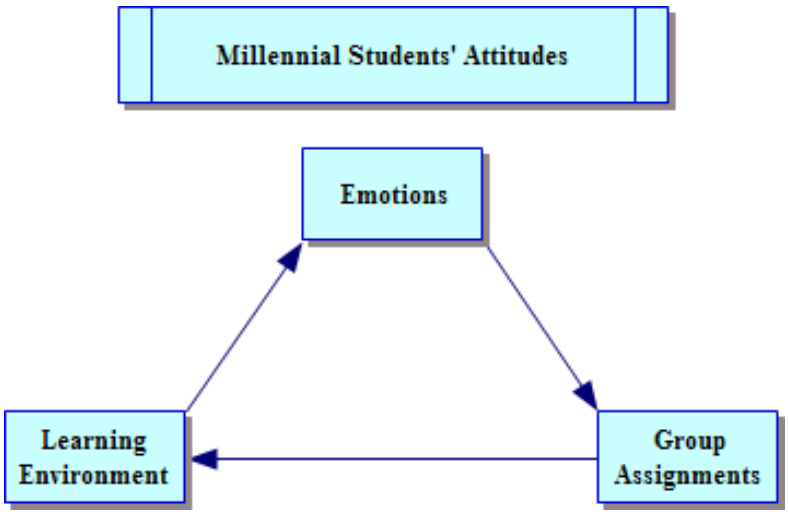
> Not all classrooms should be a new generation of learning. There are some classrooms that don't work well in a group environment. This depends on the teacher's method of instruction. If the instructor is going to have students research and work together, then a new generation of learning is great for that type of

learning. If you are taking notes all day from a lecture, then there is no need for a new generation of learning environment.

Millennial Students' Attitudes

The second feedback in the System Influence Diagram (SID) was the Millennial Students' Attitudes. The three elements that made up this feedback loop were Learning Environment, Emotions, and Group Assignments, which is shown in Illustration 5.17.

Illustration 5.17: Millennial Students' Attitudes



The *Learning Environment* referred to how the new generation of learning classroom setting impacted student learning. This included the faculty's tone and the interactions among students in the classroom. Millennial students expressed that there were instructors who made the classroom feel welcoming. They especially felt relaxed and calm when their learning environment had a team oriented atmosphere. They stated:

> Having a person sit beside you at the table who knows what they are doing in class is good when you are confused. You can ask that student for help or for the answer instead of having to raise up your hand and disrupt 30 people. You don't need the professor as much when you have the group with you. It is a team

> oriented environment. I'm motivated because I have many people around me to help answer questions and do assignments.

The team oriented atmosphere that the Millennial students experienced created positive *Emotions* in their learning environment. The students felt secure and confident when they sat in groups. They helped each other understand the course topic and felt secure within their groups. The Millennial students stated:

> There is no stress in getting something wrong. If the professor asks you a question and you don't know the answer, then it can be referred to your group members. You are not sitting by yourself. You are surrounded by a bunch of students. It's fun. You have someone to talk to. You talk amongst yourselves and help each other. The spotlight won't be on you. It's like you're one with each other. We support and lean on each other. You're not by yourself in this environment. It's a secure environment.

Emotions had a direct impact on *Group Assignments.* Group Assignments refer to students working together in teams. The Millennial students discussed what collaboration meant in their learning environment.

> Emotions influence what you're feeling towards your group. Regardless of the new generation of learning classrooms, you might not be enthusiastic about a certain group assignment or a member in your group. It can mess up your whole group because you might be upset. You have to feel comfortable in your environment in order to open up to your classmates. Other times I'm excited about my group. I've made friends.

In addition, the Millennial explained that their peers could become more distracted in their *Learning Environment* when interacting with each other.

> Students tend to talk more in a new generation of learning environment. When you're in groups it's more social. People are talking about what they are looking at in the Internet. It is hard to pay attention and listen. You have to hear over all

> the chatting that is going on. The instructor has to constantly tell us to be quiet because there are people trying to learn.

The Millennials students discussed another distraction in the learning environment which were the laptops.

> The laptops can be a distraction. It's right there. You have access. You can use it when you want. The students need to understand that they should not use the laptops while the instructor teaches. A lot of instructors will tell us to close the laptops in the classroom because we are not using them right now. The other teachers will talk and give instructions while the students are on Myspace or checking their email.

The Millennial students also shared that they could feel negative *Emotions* in their learning environment. When they felt the group was not equally contributing to a *Group Assignment*, the Millennial students found concentration in class a challenge.

> There are students who use the computers to check their emails when they are not suppose to during class. That makes me upset. I'm doing all this work, and they don't help me. I'll be frustrated. I want them to stop typing and talking. It makes it hard for me to listen and pay attention to the teacher. You are interrupted by these students. It can get disruptive.

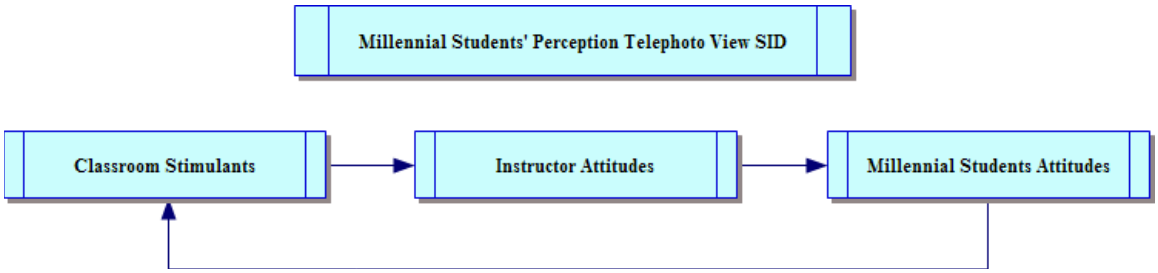
In this situation, the Millennial students experienced a negative learning environment in the new generation of learning classrooms.

Telephoto View.

To gain further understanding of the Millennial students' perception of the new generation of learning classrooms, the investigator replaced the affinity names with the feedback loop names (Classroom Stimulants, Faculty's Attitudes, and Millennial

Students' Attitudes). This process created a telephoto view of the System Influence Diagram (SID), which is shown in Illustration 5.18.

Illustration 5.18: Millennial Students' Perception Telephoto View SID



The telephoto shows that Classroom Stimulants in the new generation of learning classrooms impacted the instructor attitudes, which influenced the Millennial students' attitudes. This system created a loop to influence classroom stimulants. The Millennial students could either have a positive or negative perception on the new generation of learning classrooms. For instance, classroom stimulants such as laptops, white boards and flexible furniture impacted how the instructor felt towards the classroom. Instructors who decide to use the classroom amenities would make students feel motivated since this included encouraging their participation in the learning environment. As a result, students would have a positive attitude on the amenities offered in the classroom.

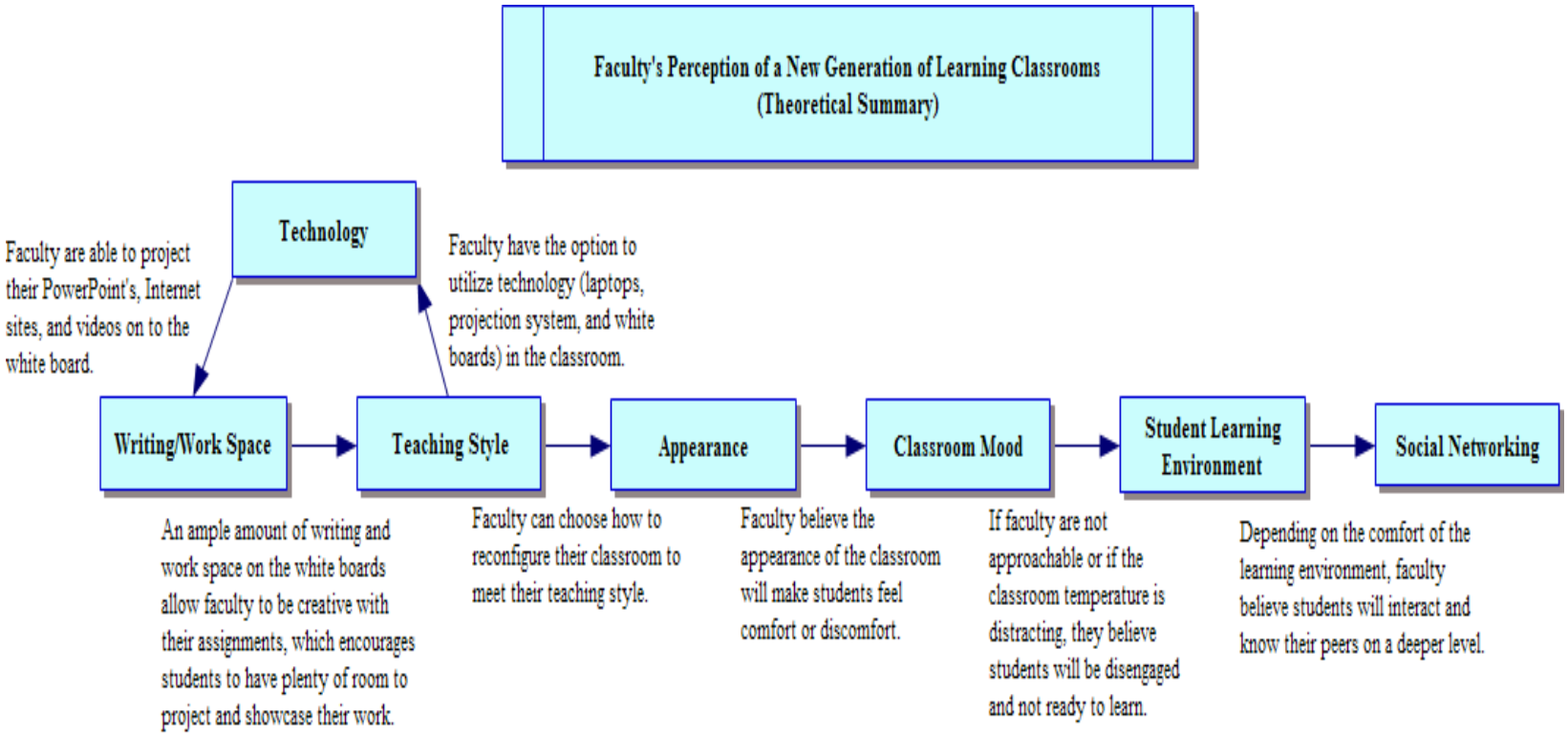
A negative perception of the new generation of learning classrooms could create another experience. For example, a classroom stimulant such as laptops could be ignored by the instructor. The instructor may choose to have the laptops closed at all times since he or she may not feel comfortable with technology. Since the technology savvy Millennial students would not have the opportunity to conduct online research, they would become frustrated in their learning environment. Then, they would feel there was

no use for this type of classroom if they could not utilize the amenities (Classroom Stimulant) for their learning.

Faculty

Illustration 5.19 shows a visual tour of the faculty's perception on the new generation of learning classroom. The system shows the influence direction between affinities starting with the primary driver (Technology) which affected the secondary drivers (Writing/Work Space and Teaching Style) and circulator/pivot/? driver (Appearance). These relationships stimulated the secondary outcomes (Classroom Mood and Student Learning Environment) and primary outcome (Social Networking).

Illustration 5.19: Faculty's Perception of New Generation of Learning Classrooms (Theoretical Summary)



Faculty expressed that the availability of computers and the projector system had allowed them to show PowerPoint presentations, Internet sites, and videos on to the white boards. There were two types of white boards (also identified as *Writing/Work Space*) in the new generation of learning classrooms – white boards mounted on two sides of the walls and mobile white boards. Faculty found that the ample amount of writing and work space on the white boards prevented their *Teaching Style* from becoming restricted. Faculty stated, "In the traditional classroom, I planned my lecture and activities according to how much space was available. You can't get too overboard on one concept because you would have to erase it and put more information up." They were able to project presentations while writing notes beside it. They were no longer concerned with the limited writing and work space available on the boards.

Additionally, faculty shared that the new generation of learning classroom appearance provided the flexibility to reconfigure the *Appearance* of the classroom. If students needed additional floor space to work on group projects, the tables could be easily broken down and rolled to the side of the room. Faculty participants believed that the appearance could create a positive or negative energy among the Millennial students, which impacted the *Classroom Mood*. They stated, "If they (students) are too close together, people will feel like they are on top of each other, and it's comfortable. If they are too far apart (between tables), then there is no sense of togetherness either." This type of energy influenced the *Student Learning Environment* to be unfriendly. Thus, Millennial students were less likely to participate in class. They found it difficult to interact with their peers. However, faculty mentioned that if there was a positive and comfortable environment, *Social Networking* would occur among the students. Faculty

stated, “Social networking won’t happen by itself. The environment allows for students to behave in certain ways that involve interacting and doing activities.”

Zoom-In

Northcutt and McCoy (2004) stated “the next step in interpretation after describing the System Influence Diagram (SID) for a particular constituency is to look for opportunities to produce different views of the system. Zooming in allows the investigator to develop different views of a system,” which includes analyzing feedback loops (p. 333). “Feedback loops consisted of a system of at least three affinities, each influencing the other directly or indirectly” (Northcutt & McCoy, 2004, p. 335). As part of the Interactive Qualitative Analysis (IQA) methodology, the investigator named the feedback loop. The faculty System of Influence Diagram (SID) shows one feedback loop.

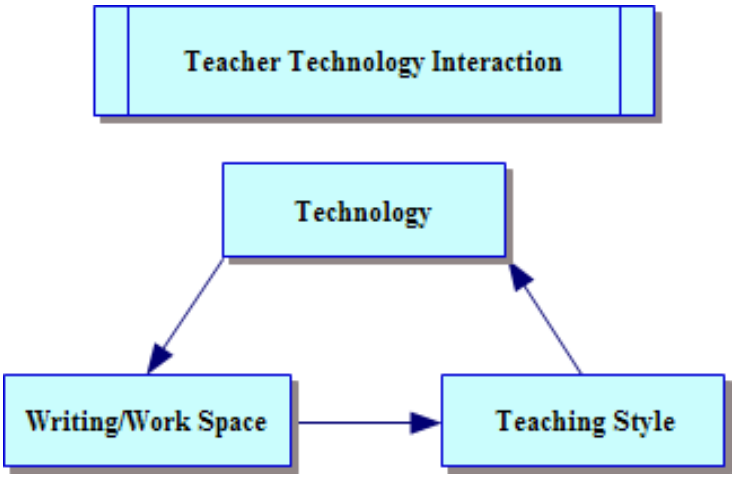
Feedback Loop.

Within the system, there was one feedback loop, which had been identified as Teacher Technology Interaction.

Teacher Technology Interaction

The faculty identified three elements that influenced an instructor’s interaction with technology in the new generation of learning classrooms. These elements include Technology, Writing/Work Space, and Teaching Style as shown in Illustration 5.20.

Illustration 5.20: Teacher Technology Interaction



Faculty expressed that the new generation of learning classrooms was inundated with technology.

> All the technology that I want to use is in that classroom and not in a traditional classroom. I teach in both. I'm able to use a variety of technology. I am able to use PowerPoint all the time in the classroom. I create PowerPoint presentations, so the students can see what I'm doing step by step instead of writing things on the board. We use a web based program in mathematics called My Math Lab and graphing calculators. We can use the digital overhead projection system to show the images to the entire class. I don't talk and explain too much. They like to see what they learn. I just show it to them. Technology is very important. I couldn't use technology in a traditional classroom.

When faculty members had the opportunity to use technology in the classroom, they believed it was critical that they have an ample amount of *Writing/Work Space*. They would be able to project their presentations to show the entire class.

> I can project anything onto this work space. We upgraded our white board so that we can accommodate the technology. Many times students have learned more than one way. If they miss it, then I can explain the topic further on a white board next to the technology they are looking it.

Faculty emphasized that utilizing the Writing/Work Space encouraged them to implement multiply *Teaching Styles*.

> I find that I do less writing, diagramming, and drawing when I have good technology to use. It allows me to be more creative. I will use PowerPoint, Internet, videos and Blackboard. Technology stimulates my teaching style and reminds me to not be the talking head at the front of the room at all times. Rather than lecture, I may have them do activities with technology.

Some faculty chose to not use technology since it would cause disruptions in the classroom.

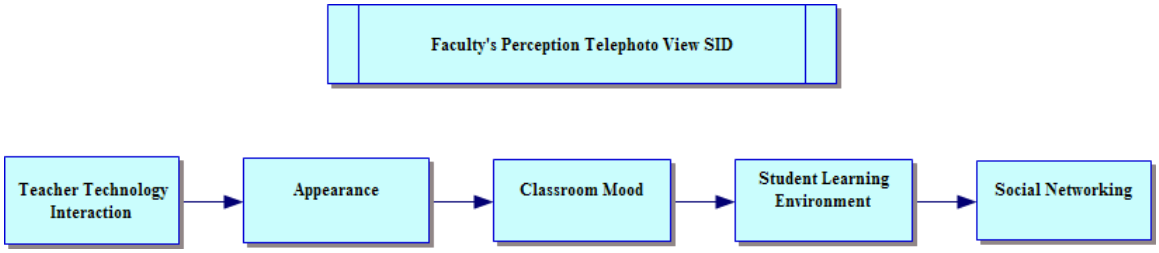
> When I get to the class, I tell the students that I want all the computers off. I know some are looking at who knows what and some of them are writing papers for other class assignments. If a student is surfing the Web, they are not interacting in the class. They are not engaged in the class. I tell them that I don't allow that they work on other assignments for another class. If we are working on something else, I tell them that they don't need to have a computer on right now. I will let the students know when they need the laptop.

Faculty articulated that technology did not always influence their teaching style. Instead, they expressed that their teaching style determined if technology was used in the classroom. If an instructor's teaching style was interactive, then they chose technologies to support that. Faculty stated, "Technology is going to help me. My teaching style is going control the technology."

Telephoto View.

To gain further understanding of the faculty's perception of the new generation of learning classrooms, the investigator replaced the affinity names with the feedback loop name (Teacher Technology Interaction). This process created a telephoto view of the System Influence Diagram (SID), which is shown in Illustration 5.21.

Illustration 5.21: Faculty's Perception Telephoto View SID



The telephoto shows that Teacher Technology Interaction in the new generation of learning classrooms influenced the other affinities (Appearance, Classroom Mood, Student Learning Environment, and Social Networking). The faculty can either have a positive or negative perception of the new generation of learning classrooms. For instance, instructors may choose to show a video or movie to the class. To create a movie theater atmosphere, the instructor could instruct the Millennial students to glide the tables to the side of the room and align the chairs to face the screen. This would change the appearance of the classroom. The students may perceive the classroom mood to be relaxing as this would the tone set by the instructor. Thus, the faculty may believe that students would become comfortable in their learning environment. This comfort level may increase student interaction especially since students may be sitting closer in proximity.

A negative perception of the new generation of learning classrooms could create another experience. For example, instructors may choose to lecture and not use the laptops and mobile white boards available in the classroom. Their approach in the classroom would control the appearance of the classroom to fit the traditional learning environment, which includes no opportunity to research online or increase student

interaction. Hence, the Millennial students would not get to know their peers as much if the instructor encouraged students to network in the classroom.

SYSTEM INFLUENCE DIAGRAM (SID) COMPARISONS – RESEARCH QUESTION 5

There are a number of differences and similarities between the Millennial students' and faculty's SIDs as it related to their perception of the new generation of learning classrooms. This section is separated by the following three sections: (1) Same primary driver and primary outcome; (2) Millennial students' SID had more directions of influence; and (3) Which affinity impacted the other? Depends who you ask.

The comparison between the Millennial students and faculty is shown in Illustration 5.22 and 5.23. The affinities for each group are in sequence order from the primary driver to the primary outcome. An affinity labeled as a primary driver is described to be a significant cause that affects many other affinities, but is not affected by others. If an affinity has no *Ins*, it is categorized as a primary driver. A secondary driver is identified when there exists both *Outs* and *Ins*, and there are more *Outs* than *Ins*. *Circulators/Pivots/?* are identified when there exists an equal number of *Outs* and *Ins* and indicates a position in the middle of the system, the pivot point, in the final visual representation of the system. The secondary outcome is identified when more *Ins* than *Outs* exist. Finally, an affinity with no *Outs* is always a primary outcome. The primary outcome has a significant affect caused by many of the affinities. The *Ins, Outs,* and *Circulators/Pivots/?* were discussed in Table 4.05 and 4.11. It is important to note that primary outcomes can influence other affinities only if it is part of a feedback loop, which is evident in the Millennial student's SID as shown in Illustration 5.22.

Illustration 5.22: Millennial Students' and Faculty's SIDs Comparison

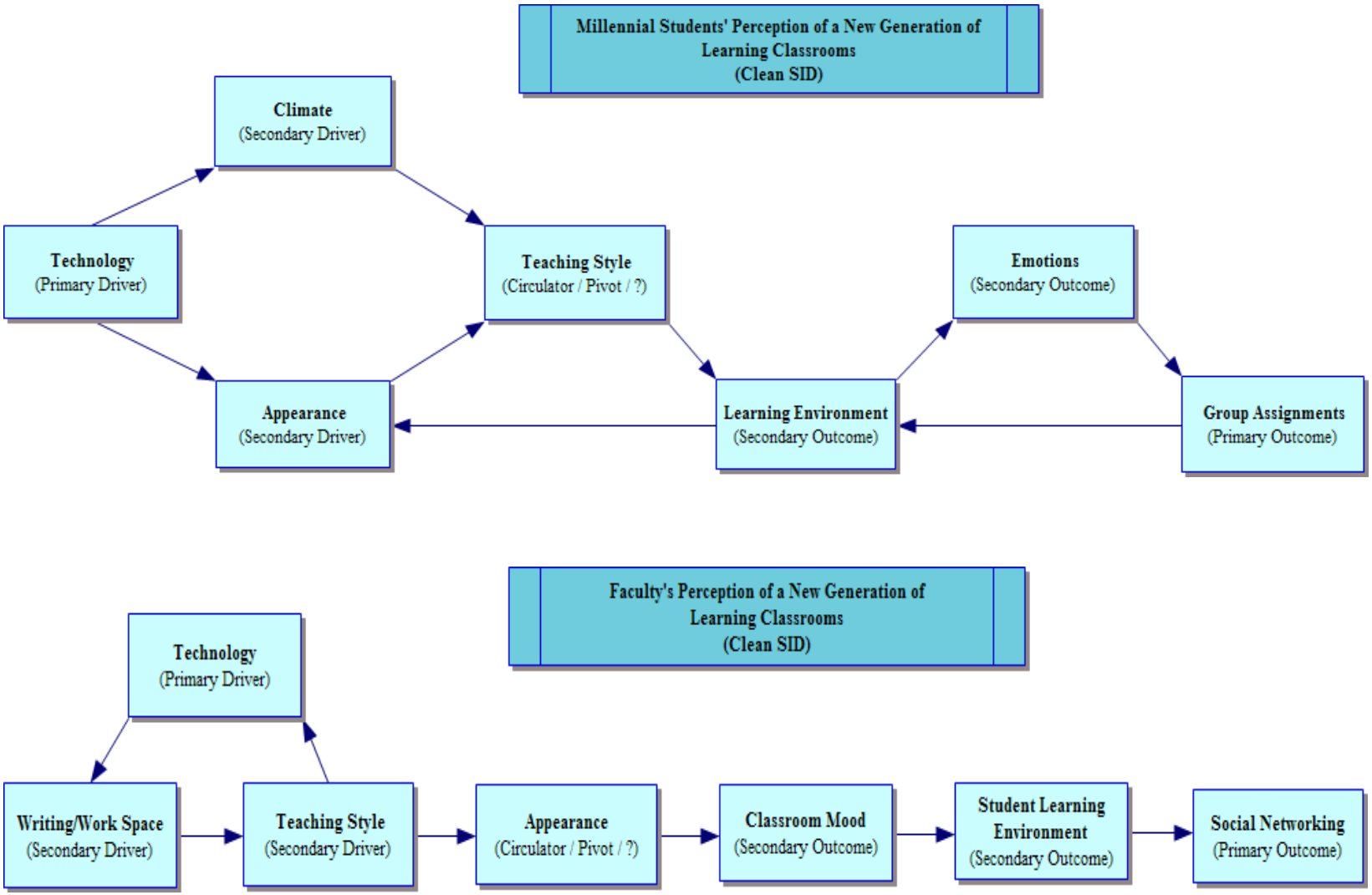
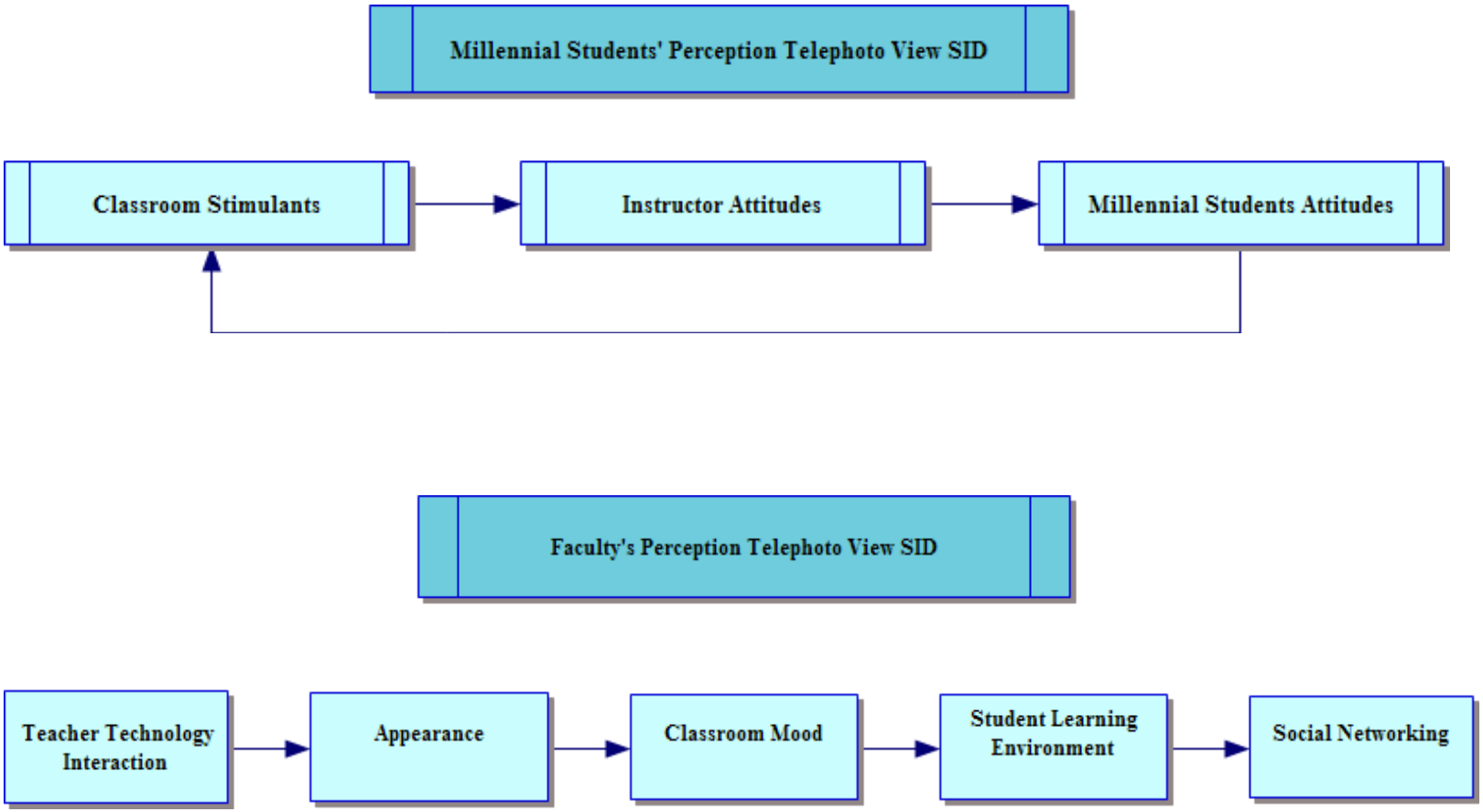


Illustration 5.23: Telephoto View SID Comparison



Same Primary Driver and Primary Outcome

Both groups identified Technology as the primary driver and group dynamics (Group Assignments and Social Networking) as the primary outcome. This is shown in Illustration 5.22. Technology was a significant cause (influencer) that affected all other affinities. Millennial students and faculty shared that the new generation of learning classrooms were rich in technology. The Millennial students' technology skills and habits begun to influence the way learning has been performed (Craig, 2004) by transitioning from the old to the new generation of learning. Carmean and Haefner (2002) highlighted that technology has molded the new generation of students to seek learning environments that are social, active, contextual, engaging, and student-owned. The Millennial students who participated in this study stated, "The laptops make it easy to look up information when we begin an assignment. It's a collaborative environment. Someone can type. Someone can research online. You can work on the same thing and work together while everyone has their own laptops." They have found that technology brings convenience into their learning environment.

In addition to their agreement on the primary driver, they also agreed on the primary outcome. The Millennial students and faculty acknowledged that group dynamics was the outcome in regards to the Millennial students' and faculty perceptions of the new generation of learning classrooms. This became evident in the following statements expressed by the Millennial students and faculty:

- "…getting people to work together."
- "…students participate, respond, react."

- "…encourages group work."
- "You are going to do something instead of just watch the instructor."
- Students "can create their own area to work. This will involve moving furniture."

Students, who had the expectation that they would not attend the class to watch the instructor perform, and that they would have the flexibility to change the classroom layout to fit their needs, believed they would become active participants in their learning. Thus, this type of learning environment implied that students would be encouraged to network (get to know their peers) to work on group assignments.

Millennial Students' SID had More Directions of Influence

The Millennial students had more directions of influence in their System Influence Diagram (SID) in comparison to the faculty. The Millennials had two pathways of influence and two feedback loops in their SID, and the faculty had one feedback loop in their SID. The two brief paths in the Millennial students' SID began with the Technology affinity. Depending on the Millennial students' experience, technology would either influence their perception of the climate or appearance in the new generation of learning classrooms. Regardless of the direction of influence, the path influenced the Teaching Style. In addition, the two feedback loops in the Millennial students' SID involved the Learning Environment affinity. The first feedback loop (Instructor Attitudes) entailed Appearance, Teaching Style, and Learning Environment. The second feedback loop consisted of Learning Environment, Emotions, and Group Assignments (Millennial Students' Attitudes). This is shown in Illustration 5.23.

In comparison, the faculty's SID had only one feedback which the investigator identified as Teacher Technology Interaction (Illustration 5.23). The feedback consisted

of Technology, Writing/Work Space, and Teaching Style. This feedback loop influenced all other affinities within the SID.

Even though both groups shared the same number of affinities, the presence of numerous paths in the Millennial Students' SID implied that there were more directions of influence on their perception of the new generation of learning studios. This was evident by the number of arrows in the SIDs. The Millennial students had a total of nine arrows in comparison to the faculty who had a total of seven arrows. Thus, the Millennial students' perception would not only affect one element, but many elements would be impacted at the same time.

Which Affinity Impacted the Other? Depends Who You Ask

In the Millennial students' and faculty's SIDs, they identified the following same affinities: Appearance, Teaching Style, Learning Environment, and group dynamics (Group Assignments and Social Networking). These groups differed on the influence direction of three pairs: (1) Appearance and Teaching Style; (2) Appearance and Learning Environment; and (3) Group Assignments/Social Networking and Learning Environment.

Appearance and Teaching Style

The Millennial students identified that the Appearance (secondary driver) directly influenced the Teaching Style (circulator/pivot/?). For instance, the Millennial students expressed that the appearance had positively impacted the following teaching styles:

- A change in the instructor's role (from an authoritative figure to a mentor)
- Increased usage of technology

- Increased student participation (classroom discussion) and less lecture
- Increased student group work
- Increased personal interaction with students

The Millennials also stated that the Teaching Style indirectly impacted the Appearance. This could be either a positive or negative experience for the students. A positive example could be when an instructor's teaching style encourages students to change the appearance of the classroom. If students required more space for learning, they could move the furniture to meet their needs for the assignment. A negative experience could be when an instructor's "archaic" teaching style is to ignore the amenities (such as laptops and white boards) in the classroom. Thus, the Millennial students would not have a positive outlook on the appearance of the new generation of learning classrooms.

The faculty participants expressed that their Teaching Style (secondary driver) had influenced the Appearance (circulator/pivot/?). They agreed with the Millennial students.

Appearance and Learning Environment

The Millennial students identified that the Learning Environment (secondary outcome) directly influenced Appearance (secondary driver). For example, the team oriented environment could encourage students to interact more frequently since the appearance consisted of tables where students sit together. The Millennial students also stated that the appearance indirectly impacted the learning environment. They stated:

> If you see the things you want to see in a classroom, then it is going to be more calming. You are more willing to learn in this environment. When I go into the new generation of learning classroom, it's not boring. It's more inviting. It puts me in a better mood before my class starts. Learning is not a chore. I won't be anxious at watching the clock. I will be a lot happier.

The faculty participants expressed that the Appearance (circulator/pivot/?) indirectly influenced the Student Learning Environment (secondary outcome). Since the new generation of classrooms had flexible furniture which could be easily moved around, the faculty participants believed this type of appearance would create a collaborative learning environment as students created their spaces for group assignments.

Group Assignments/Social Networking (Group Dynamics) and Learning Environment

The Millennial students and faculty both identified that group dynamics (Group Assignments and Social Networking) was the outcome in their System Influence Diagram (SID). They had different views on the influence direction between group dynamics and learning environment.

The Millennial students expressed that Group Assignments (primary outcome) directly influenced the Learning Environment (secondary outcome). For instance, the group dynamics could impact the students to either have a positive or negative learning environment. A positive experience could be a Millennial student who was part of a group that equally contributed to the work assignment. Thus, they would be satisfied in their learning environment. A negative experience could be a Millennial student whose group did not get along and did not help each other on group assignments. Therefore, the students would become frustrated in their learning environment, and they would have the desire to work separately from the group.

The Millennial students also stated that the learning environment indirectly impacted group assignments. They expressed, "When you are sitting in groups you get to know the people around you and you are more prone to want to work with them." Since the learning environment encouraged students to work in groups, they were more open to interact with their peers.

The faculty participants expressed that the Student Learning Environment (secondary outcome) directly influenced Social Networking (primary outcome). Depending on the comfort of the learning environment, the faculty participants believed students would interact and know their peers on a deeper level. They stated, "Social networking starts with the environment. The environment allows for students to behave in certain ways that involve interacting and doing activities." This was beneficial for the Millennials whose social nature lead their learning preference to work in teams and help each other. Brown and Lippincott (2003) expressed that Millennial students need spaces to create network connections. Additionally, the attraction of group work includes the opportunity to demonstrate their cooperativeness and to reduce the risk of individual failure (Howe and Strauss, 2000). If the Millennial students were uncomfortable, then they would be less likely to not interact with their peers students.

THEORETICAL FRAMEWORK

A model and theory were chosen to address the learning style preferences of the Millennial generation as it aligned with their habits and expectations: Self-Regulated Learning Model and Situated Learning Theory. The theoretical framework guided the research.

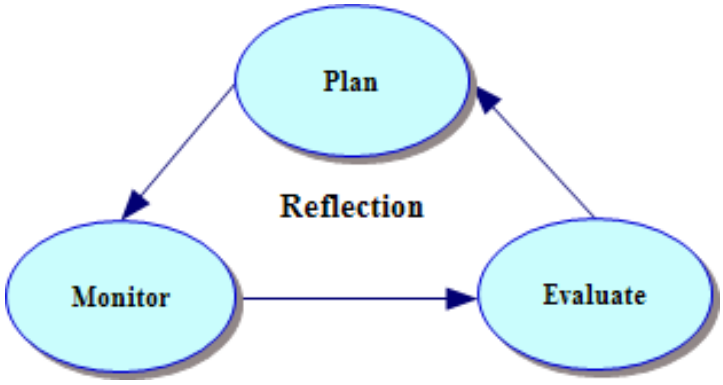
Self-Regulated Learning Model

Self-regulation is a critical aspect of student learning in the classroom (Pintrich & De Groot, 1990). Purdie, Douglas, & Hattie, (1996) defined self-regulated learning as students who "direct their own learning experiences" and "control the methods needed to attain the learning goals they have set for themselves" (p. 87). Thus, the role of instructors in developing self-regulated students is different from traditional classes where the faculty person emphasizes subject content goals, monitors students' progress, and moderates the pace of learning for the entire class. Instructors shift the responsibility for learning to students by:

> (a) asking them [students] to self-monitor, (b) assisting them to analyze their own data either individually of in small groups, and (c) helping them set goals and choose strategies in light of self-monitored outcomes. (Zimmerman, Bonner, & Kovach, 1996, p. 16).

A visual representation of the self-regulated learning model is shown in Illustration 5.24

Illustration 5.24: Self-Regulated Learning Cycle



Source: Pintrich and De Groot (1990)

Pintrich and De Groot (1990) emphasized that there are three critical self-regulating components for classroom performance which continuously involves reflection: (1) plan one's learning, (2) monitor progress while implementing the plan, and (3) evaluate the outcome of the plan upon completion.

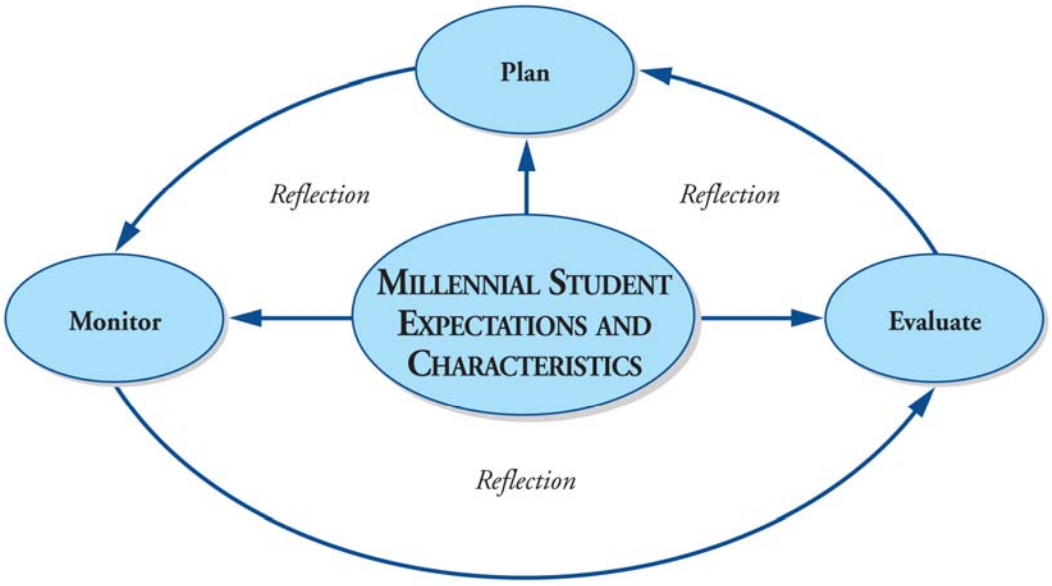
These three components were evident among the Millennial students in the new generation of learning classrooms. The investigator had an opportunity to conduct observations in these learning settings for the spring 2007 semester. She observed the following implementation of self-regulated learning:

> Today, the instructor informed his students that the final project for the course should focus on globalization. He suggested that their presentation should discuss how Americans should prepare for this in their life. He encouraged the students to pursue any angle whether it dealt with business, leadership, products, or international relations. His constant remark, "I don't have the answers to globalization, so let's figure it out together," implied that his teaching style consisted that the learning environment be collaborative and student owned. Every class period, the instructor designated time for students to work in their teams and plan for the assignment. I sat with a group of four students to hear their discussion. They identified their focus and created a strategy to complete the task (*plan*). The group reported to each other every week and *monitored* the progress of their project. After they presented their study to the class at the end of the

semester, the group gathered once more to *evaluate* their project and themselves. Throughout the semester, they often *reflected* and made modifications to improve the quality of the assignment.

Even though the Millennial students implemented the self-regulated learning components, they had a different approach to this model. The traditional model of self-regulated learning emphasizes in the autonomy of taking charge of one's own learning. However, their social nature led them to apply these elements to their groups instead of just themselves. The Millennial students collectively planned, monitored, evaluated, and reflected throughout the project assignment. These students have a preference for group-based activities (Oblinger, 2003; Jonas-Dwyer & Pospisil, 2004). Thus the investigator proposed an expanded version of the self-regulated model to include the expectations and characteristics of the Millennial students as shown in Illustration 5.25.

Illustration 5.25: The Millennial Students' Collaborative-Regulated Learning Cycle



Source: Garcia (2007b)

In comparison to the Self-Regulated Learning model, the Collaborative-Regulated Learning Cycle also has the same critical components: plan, monitor, and evaluate. However, those elements are impacted by an additional component, Millennial students' expectations and characteristics. Expectations represent the affinities that were identified by these students: Technology, Climate, Appearance, Teaching Style, Learning Environment, Emotions, and Group Assignments. The Millennial students require that these factors are critical in the new generation of learning classrooms. Their characteristics, as mentioned in Chapter II include: gadget fanatics, social networkers, Internet enthusiasts, optimists, multitaskers, and inductive learners. Thus, the expectations and characteristics would influence how they plan, monitor, evaluate, and reflect on their learning. For instance, the Millennial students expect a social learning environment since they have a social networking characteristic. Thus, they would collectively *plan* on how to complete the group assignment. This can include deciding the responsibilities of each team player. Next, the Millennial students would update their group on the tasks they were assigned to conduct (*monitor*). At the completion of the group assignment, the group would *evaluate* their project and each other. Throughout the process they constantly *reflect* with their peers.

Situated Learning Theory

Situated learning refers to the idea of "a community of practice" - a description of "a group of people who work together to accomplish some activity" (Smith, 2006; Clancey, 1995, The Community of Practice Analytic Framework section, para. 1). This usually involves collaboration between individuals. Social interaction is a critical

component of the Situated Learning Theory. Jean Lave and Etienne Wenger observed that communities of practice are everywhere whether it is at school, work, or home. Members are brought together by joining in common activities and by what they have learned through their mutual engagement in these activities (Wenger, 1998). Smith (2006) stated:

> The fact that they [groups] are organizing around some particular area of knowledge and activity gives members a sense of joint enterprise and identity. For a community of practice to function it needs to generate and appropriate a shared repertoire of ideas, commitments and memories. It also needs to develop various resources such as tools, documents, routines, vocabulary and symbols that in some way carry the accumulated knowledge of the community. In other words, it involves practice: ways of doing and approaching things that are shared to some significant extent among members. (Communities of Practice section, para. 4)

Wegner (1998) emphasized that "members of a community are informally bound by what they do together – from engaging in…discussions to solving difficult problems– and by what they have learned through their mutual engagement in these activities" (Defining Communities of Practice, para. 2). According to Etienne Wenger, a community of practice defines itself along three dimensions (as cited in Smith, 2006):

- **What it is about** – A community that organizes around some particular area of knowledge and activity gives members a sense of joint enterprise and identity.
- **How it functions –** A community in which members are engaged in a social entity and binded by ideas, commitments, and memories.
- **What capability it has produced** – A community that has developed various resources such as tools, documents, routines, vocabulary, and symbols that in some way carry the accumulated knowledge of the group.

The new generation of learning classrooms supports the social nature of the Millennial students by encouraging them to create bonds groups (communities). Their

communities are organized around the group projects (what it is about). The classroom layout encouraged the Millennial students to collaborate with their peers. They stated:

> When you are sitting in groups you get to know the people around you and are more prone to want to work with them. In a traditional class, I'm not going to talk in a group as much. I won't know people's names. I'm more likely to get the assignment and get through it and get out of there. Sitting in groups forces me to get to know my peers and talk to them. I make more friends. I'm willing to put myself out there and get involved in the assignment.

As a result, these developed friendships motivated the Millennial students to support each other. Faculty stated, "If students feel like someone is looking out for them, then they are less likely to skip. People need each other. We are not meant to be solitary creatures. We're meant to live in communities and help each other." They became committed to each other and held each other accountable (how it functions). As a result, their community produced a final document at the end of the semester. Throughout this process, they developed a routine on how they communicated with each other – text message, chat online, or e-mails. The faculty expressed, "They speak in their language. They understand each other better. When I try to explain, the students don't get it."

HYPOTHESES

Five research questions were asked in Chapter I, which were used to guide the study on the Millennial students' and faculty perceptions of a new generation of learning classrooms. Glaser and Strauss (1967) stated, "Generating hypotheses requires evidence enough only to establish a suggestion—not an excessive piling up of evidence to establish proof and the consequent hindering of the generation of new hypotheses" (p. 40, as cited in Acevedo, 1979). They hypotheses created from the results follow below. An

interpretation of the results follows each hypothesis and serves to relate these findings to the theoretical framework guiding the study.

Hypothesis 1: The Millennial students and faculty have the viewpoint that the new generation of learning classrooms are rooms with a purpose.

Both participants groups expressed that the appearance gave a sense of purpose to the classroom. Millennial students believed the main purpose of the new generation of learning classrooms was to create a team work environment. They stated:

> When you enter this new environment you are ready to work and learn. You feel that you are actually going to do something instead of just watch the instructor. It is a good way to get people together because at the end of the day you are going to work with people at your job. The main purpose for these classrooms is to get people to work together.

Illustration 5.26 shows an image of the new generation of learning classrooms.

Illustration 5.26: A New Generational of Learning Classroom

Source: Design Share, 2006

Faculty also shared the same belief with the Millennial students. Faculty expressed that the appearance of the new generation of learning classrooms also have a purpose, which is to promote interaction.

> I can tell you that from being in traditional classrooms and in a new generation of learning classroom, I get much more student interaction in a new generation of learning classroom. I can see a real difference having taught for 16 years. I struggled to get my students to participate, respond, react, and ask questions in a traditional classroom. When instruction was done students would leave. Now, students are engaged. The new generation of learning classrooms are not just a room, but a room with a purpose. It encourages group work. It makes easy for students to cluster to talk and ask questions to other students and to work on projects. Students feel more comfortable doing group projects in this space. They can create their own area to work. This will involve moving furniture such as the chairs, tables, and mobile white boards. They get up and move around the classroom. There is a lot of space for learning. They ask questions. They want more information in this new learning environment. Students ask, 'Can you cover this? Where can I find out more information? Do you have any other Web sites I should look into for the assignment?' I'm always running 15 to 20 minutes late

> because someone is asking more questions as it ties to information. There is always discussion.

The faculty participants believed that these classrooms freed up the student to customize their learning environment. The Millennial students agreed. They stated, "We don't have to move the tables around since the desks are set up for a group work. The tables are flexible and easy to move. The environment sends a message to us saying it's okay to work together."

Hypothesis 2: The new generation of learning classrooms are inundated with technology.

Millennial students and faculty both shared that the new generation of learning classrooms are rich in technology in comparison to a traditional classroom. Technology referred to the number of laptops available for students in the new generation of learning classrooms. Since the Millennial student participants have enrolled in courses that were taught in a traditional classroom and a new generation of learning classroom, the amount of technology served as a major difference between both environments. They stated:

> There is a jump in technology in comparison to the traditional classrooms. There is tons of technology. There are computers everywhere. Everyone noticed that when we first went into these classrooms. These rooms are about technology. I've learned so much about technology here. I'm more computer savvy now then what I use to when I went to another community college. This is a technology driven campus.

Faculty shared the same appreciation on the access of technology in the new generation of learning classroom. They expressed:

> All the technology that I want to use is in that classroom and not in a traditional classroom. I teach in both. I'm able to use a variety of technology. There is a laptop at every desk or one for every person which depends on the new generation of learning classroom set up. I am able to use PowerPoint all the time in the classroom. We can use the digital overhead projection system to show the images to the entire class.

"Technology has had a profound impact on campus environments" (Herman Miller, 2004, p. 1). Carmean and Haefner (2002) pointed out that learning is effective when technology is combined with the following five learning principals (social, active, contextual, and engaging).

- **Deeper Learning is Social**. An online world is social, anytime and all the time. Discussion boards encourage peer-to-peer responses asynchronously, and involve many students as opposed to the instructor-led discussions often found in the classroom environment. (p. 30)
- **Deeper Learning is Active.** An interactive learning environment allows for quick and meaningful feedback. Answers can be evaluated, responses can be delivered, and students can be directed to outside sources for better understanding. Students can receive immediate feedback to misconceptions and errors in their thinking. (p. 30)
- **Deeper Learning is Contextual.** Course material can be implemented by the use of sound, video clips, and the Internet which allows the learner to see content in a personified manner. (p. 30 – 31)
- **Deeper Learning is Engaging.** An engaging learning environment considers the diverse learning styles of students who are attracted to visual stimulus or verbal interaction. Providing a greater volume of diverse course materials such as lecture notes, multimedia-enhanced curriculum, discussion boards, live chat rooms, links to

outside Web sites, and formative assessments are strategies to increasing engagement. (p. 32-33)

The Millennial students in this study emphasized, "Technology changes the way we learn. If it is not present in the classroom, then I feel restricted."

Hypothesis 3: The new generation of learning classrooms encourage students and faculty to participate in non traditional roles.

With the creation of the new generation of learning classrooms, the Millennial students expressed the modern classrooms impacted the teacher's role. The instructor no longer had the role of an "intellectual authority," They were removed from the center of the classroom. Instead, they took the role of a facilitator, coach, counselor, and mentor while the student became an active participant in the classroom.

> In the traditional classroom, the instructor is the boss. They don't want the students to teach. We have to listen to the person. They take the role as a lecturer. Now, the instructors are not seen as the authoritative person in the classroom. They are more of a mentor. They do a creative job to force you to have some input. Everyone has to say something. This new teaching method has more involvement with the students. The professors know more about the students. Students don't want that top down approach to begin with like 'I know what needs to be learned.' We have a lot less respect for authority in that aspect. We have an attitude of teach me what you know, but I'll keep interrupting. This is how my generation feels about it.

Historically, instructors and students who participated in the classroom experience had fixed roles. The instructor played the role of the expert. Students had also used terms such as "umpire, judge, and dictator" (Knowlton, 2000, p. 7). In this authoritative role, teachers were the sole influencers in the learning environment. The instructor was the "giver of knowledge" and the stimulus to students (Knowlton, 2000, p. 7). Students "take

the information they are 'taught' into active working memory" as they "tune in" to the teacher's lecture (Tapscott, 1988, p. 129).

Some faculty also acknowledged that different learning environments could impact their role in the classroom, which influenced how students would react to this change.

> In the new generation of learning classroom, the teacher is not a traditional role. The atmosphere of the new generation of learning classroom lends itself better to the teacher as a facilitator. You are their as a researcher, as an advisor, and counselor. You become a guide rather the person who does all the lectures and who has all the information. Students ask questions more readily in this atmosphere. I do less talking now in the new generation of learning classroom. We do all the conversation. I do more guiding, more encouraging. The teacher may provide the resource or legitimize the information by providing the background and some of the research. They (students) have to do the product based on the information they receive. It's student-centered and student driven. Everyone is an expert in some area and has information to share. All this would be different if the students are aligned like soldiers in a row. Then, they will look at the instructor differently, especially as an authoritative person.

Faculty members who took on the facilitator role in the classroom were more likely to create a less formal learning environment for students. As a facilitator, instructors sought input from students, lead group discussion, and coordinate group projects for students. A critical component in the position of a facilitator was that the instructor encouraged students to contribute to the learning environment. Learning was reciprocal between groups and not one sided. Faculty discussed how they made the learning environment informal.

> When I first taught I was basically told you have to be like the authoritative boss. Now, I melt in to the environment, and I am also taught by the students. I'm not the sole expert in the classroom. I become one of them, and I learn with them. My students call me by my first name. I feel I have a good relationship with

> them. They are not scared to talk to me. It's not like students think 'I can't talk to her or ask her this.' Of course, I don't want them to be.

As a result to the instructor's change in role, students found faculty members less intimidating and more approachable. However, a hierarchical approach in the classroom where instructors displayed their authority among the students was less favorable by the Millennial population.

Hypothesis 4: There are faculty who modify their teaching style to suit the new generation of learning classrooms.

The Millennial students expressed that there were instructors who adjusted their teaching style to fit the new generation of learning classrooms. This included an increase in technology proficiency, encourage student participation, decrease lecture time, and increase student group work. The Millennials indicated that these strategies helped strengthen the relationship between students and faculty.

> A lot of instructors have modified their teaching style. The teachers try to create an interactive class discussion to get us to talk or we will break out into groups. Their teaching style is a new age of teaching instead of getting up in the front of the classroom and lecturing. They do a creative job to force you to have some input. Everyone has to say something. This new teaching method has more involvement with the students. My instructors who teach in a new generation of learning are very adamant about class discussion and diversity. They prefer to be asked questions by the students. They are compatible, comfortable, and prepared to teach in this new learning environment. They have more liberty to do group projects and research in the class as to the traditional classroom where it is a drag. They are comfortable with the laptops. They will open the computer and log on and go to a Web site and research.

The faculty expressed the need to implement different teaching styles for the Millennial students. Some instructors modified their teaching style to keep the student's attention. The faculty participants believed that since Millennial students had been raised

in an environment of instant gratification, they would expect that in the classroom. Thus, they made sure they get to the point when teaching.

> I can only hold the Millennial students' attention span for short periods of time, so I break up my teaching style in the new generation of learning classroom. If I lecture for a couple of minutes, I better have something else on the other side to keep their attention. I'll show videos and create discussions. There is some parts that they can self discover. Constant lecture won't be conducive to learning. It's got to be a mix. You need to have different ways of discussing a subject with the Millennials. If it's not, then they won't listen.

The faculty indicated that the flexibility of the classroom reminded them to stop their lecture in the classroom, encourage discussion, and incorporate technology into the learning environment. They stated, "Teaching in a new generation of learning classroom reminds me that they have their own voices and thoughts. Students prefer group discussion. I want them to do more of the talking."

Hypothesis 5: The new generation of learning classrooms encouraged a situated learning environment.

The Millennial students shared that the layout of the new generation of learning classrooms had increased their interaction with their peers. When they were able sit in groups with their peers, the Millennial students were more likely to interact, create stronger bonds and assist each other with understanding the course. This type of environment had been identified as situated learning. This referred to a group of people who joined to form "a community of practice" (Smith, 2006). The Millennial students expressed that the class layout supported their social nature and encouraged them to create bonds with their peers.

> The classroom set up makes you more aware of your fellow students instead of the instructor. When you are in group setting environment you have to look around. If the person next to me has a question or a problem, I can't just ignore it. I'm more prone to turn to them, tell them how to do it, and tell them what's going on in the classroom. A lot of times when I'm in a traditional classroom I don't care who sits behind me. I don't care who's got what going on as long as I understand the material, and I'm listening to the instructor.

Most Millennial students shared that sitting with their peers relieved the fear of not understanding the course material. The group setting could make the classroom environment less stressful. They were less hesitant to ask their classmate who sat next to them for clarification instead of asking the instructor.

> There are a lot of people that I've had in classes that don't usually raise their hands and disrupt 30 people. When we are in a group, students open up a lot more and ask questions. It allows you to talk about things you wouldn't say. If the professor asks you a question and you don't know the answer, then it can be referred to your group members. The spotlight won't be on you. You are not sitting by yourself. It's like you're one with each other. If you don't know what's going on in the classroom then someone else in the group will know and tell you. We support and lean on each other. You're not by yourself in this environment. It's a secure environment."

Additionally, the faculty participants felt the new generation of learning classrooms had made a difference with student interaction. They expressed that students were more likely to assist each other in this environment in comparison to the traditional classroom since the layout encouraged interaction.

> The environment naturally makes them form into groups without me having to tell them to do so. It's almost like the tables encourage group visitation. When students sit at a table, they make new friends. Students who wouldn't normally talk now ask questions in their group. They become very comfortable with the group. Each member of that group becomes responsible for the next member of the group. There are occasions when a student can explain to another student about the course material. They speak in their language. They understand each other better. When I tried to explain it, the student didn't get it. There is always

> an opportunity for students to teach each other. If I had to teach in the row fashion I don't think the students would have talked to each other as much as they do. I don't think they would have felt as relaxed as they do. It's hard to do group activity when you don't feel comfortable. The location influences student impressions of the space and how they will respond to the environment. There is a feeling of teamwork. It's collaborative atmosphere.

Since the classroom environment encouraged interaction and the Millennial students felt more secure in the new generation of learning classroom in comparison to the traditional classroom, they were more likely to create additional friendships with peers. Thus, the faculty participants found there was an increase in accountability among students sitting together. They articulated that the "students look out for one another when they are absent. They have to call each other when they are not going to be in class. They will either call, text message, or email one another." When the Millennial students created a peer support structure, they were more likely to encourage each other with their course work.

Hypothesis 6: The faculty members believed the new generation of learning classrooms increase their access to students.

The faculty participants expressed that the new generational of learning classrooms allowed them to access any student. Since the classroom layout was set up to encourage group interaction, the instructors felt they had more room to walk around the classroom.

> The set up of the tables in the new generation of learning classroom is still easy for me to navigate. It's not like you have to be in the front and center all the time. I like to walk around and see what people are doing. I can tap a student on the shoulder I like the openness of it. I think the students are very comfortable with that. We can come from any direction.

Classrooms that provided an ample of space for instructors to walk around the classroom, increased the opportunity for faculty and students to interact. This also encouraged instructors to be more approachable as they walked from group to group to answer any questions students had on course assignments.

Hypothesis 7: Students have the technology support to conduct online research in the new generation of classrooms.

The Millennial students appreciated that the access of technology enabled them to conduct research in the classroom. When their group was assigned a specific topic, they had the opportunity to collectively research online during class time. This prevented the Millennial students from negotiating a time to meet at the computer lab and having to wait in line to use an available computer. The laptops were convenient for students who desired to complete course assignments during scheduled class time.

> If you don't understand the work, if you need more information on a certain topic, or if the teacher wants us to research something, then it is easy to open up the laptop and quickly look up the information online. If we didn't have the laptops, then it will be frustrating especially if we have a quick problem to answer. It will be very difficult.

Furthermore, students who did not have access to a computer or the Internet at home become less concerned on needing to complete an assignment. They were able to perform their online research in class, print the information in the classroom, and complete their assignment at home. Other Millennial students preferred to research a topic, copy and paste the information on a Microsoft Word document, and email it to themselves. They stated, "I can use the computer to type my notes from the lecture instead of writing it down on paper."

The faculty participants agreed there was an advantage of having laptops in the classroom. They believed students were able to conduct online research during class.

> I will have students look together and get information on assessing personality styles, career information, and trends in the workplace. One of the things that students look at quite a bit is Wikipedia…an online encyclopedia. Students use other sources such as Google, and Ask.Com. They look at Youtube.com for music for their PowerPoint's too. Students access Web sites for information. Technology enhances instruction.

The Millennials accessed the World Wide Web for their educational efforts such as studying specific topics, accessing library materials, and learning from online encyclopedias such as Wikipedia (Jones, 2002). Lenhart, Simon, and Graziano (2001) reported that 94% of younger Millennials (12- to 17-years old) use the Internet for school research; 71% use the Internet as the major source for academic projects; 58% use Web sites for particular classes.

Hypothesis 8: The ample amount of writing spaces increases collaboration in the new generation of learning classrooms.

The Millennial students discussed that the mobile white boards were convenient for their group assignments. They stated, "We can use it for notes as a group. You can write something on one side and then you can turn it around and write something on the other side." The faculty shared that the mobile white boards increased collaboration among the students. Since students could move the white boards closer to their tables, they were able to record their brainstorming ideas for their group to see and discuss.

> The students are eager to write and share their ideas on the white board. They have space to do that. It's wonderful to see them take leadership roles. They sit in their group and write their thoughts on the mobile white boards. They record ideas and ask students to take a second look at an idea which they wrote on the white

board. It's right there in front of them to discuss. They can make a list, draw, or write on it. It is easy to make corrections or revisions on the spot. They will then share their ideas to the class.

Illustration 5.27 shows a picture of a mobile white board.

Illustration 5.27: Mobile White Board

Source: Garcia (2007)

Not only did the faculty participants find the mobile white boards a benefit for group work among students, they also found it helpful when students needed further explanation. They stated, "I can address specific questions from groups on the mobile white board. I don't have to go to the front of the classroom to use the big white board." Since the mobile white boards could be moved in any location of the classroom, the faculty could take the time to address questions from a group without interrupting other groups who were already working on the assignment.

Hypothesis 9: The colored walls in the new generation of learning classrooms create a positive atmosphere for students.

The Millennials students and faculty agreed that the colored walls in the new generation of learning classrooms had had a positive impact in the classroom. They described the colors as earthy tones which consisted of red, green, yellow, and blue. The Millennial students stated:

> The colors on the wall give the classroom a relaxed feeling and make the classroom open and inviting. You go in there and you are like 'ah.' Otherwise it would be the same boring traditional classroom with a gray, white, and bleak hospital appearance, which is not inviting. You will not want to be in the room for long.

Faculty expressed that the colors painted on the walls were different to the white walls in the traditional classroom. They shared that the colors could influence a person's emotions.

> When I walked in the new generation of learning classroom my first impression of the colors was 'O my gosh. Wow. It looks great!' I would have never thought to put these colors together, and I frankly didn't appreciate how color makes a difference in an environment. I usually don't notice things like that. I know it makes a difference in someone's home. I wasn't necessarily connecting on the difference it made in school. I think it really is helpful to have some variety in color and to have something with distinction to it. I think color really has to do a lot with the mood of a person. The colors are warm earth tones – browns and greens. I think the subtleness of the colors in the classroom and carpeting adds to the environment. It's soothing, warming, friendly, welcoming, and not too institutional. I like they alternate colors on the walls. The colors give you a sense that the learner has been taken under consideration. I think that makes a comfortable relaxed setting. Historically, the colors of the classrooms are boring white like a hospital room.

The Millennial students and faculty believed that the variety in colors in the new generation of learning classrooms gave the appearance of a modern and up-to-date look.

Hypothesis 10: The new generation of learning classrooms increased physical comfort for the students.

Since college course work required students to sit for extended periods of time, the Millennial students favored the ergonomic chairs and tables in the new generation of learning classrooms. They believed that the investment in the chairs and tables had increased their comfort in the learning environment. Illustration 5.28 and 5.29 shows a picture of a chair and table used by the Millennial students.

Illustration 5.28: Chair

Source: Garcia (2007)

Illustration 5.29: Table and Chairs

Source: Garcia (2007)

The Millennial students appreciated the investment made in chairs and tables. They stated it increased their comfort in the new generation of learning classrooms.

> The chairs have wheels which makes it easy to glide. They swivel and turn. The chairs are supportive for your back. They are really nice chairs. They invest in chairs. If you have the other ones in the traditional classroom you are always sitting straight. It makes you tired. You want to leave already because they are not comfortable.
>
> I like the design of the table. The tables are square in shape with curvy sides. It's on wheels, so you can move it around. They are not big and heavy tables that have been around since the 1980's. You get the feeling that it is more accommodating. The tables make it easier for people to work together. Your body is molded to your spot on the table. Four people can sit at that table. The tables are large enough. Everyone has their own space to work. I prefer the tables to desks.

The Millennial students also expressed their desire for tables to provide the physical support they needed in their learning environment. They became concerned that

their constant use and movement of the tables in the classroom had decreased the quality of their work space.

> If you lean on them, they will sag. It is not stable. There is not enough leg support. The table seems like it's going to come apart. It needs to be built with harder wood since they are moved around a lot. They get so much use.

Additionally, the faculty participants also shared that they had witnessed an increase in collaboration due to the adjustable and mobile furniture that had replaced the furniture of an earlier generation.

> When the new generation of learning classroom were first piloted, I was amazed by the furniture. The table design is modern and sleek with a retro twist. It has rounded table corners. The chairs are on wheels. They push really easily. The chairs are light weight, strong, functional, and attractive. The chairs are much more comfortable because they are adjustable by height. Students can glide from one table to anther to work with other students. We push the chair over across the classroom. It lends itself to more collaboration. I didn't feel that in the traditional classroom. Those chairs didn't have wheels. We would have to pick up the chair and move it. You could turn around maybe and talk to the person behind or next to you.

When students are given ergonomically designed furniture for the learning environment, they have an increased ability to stay focused and on task. Herman Miller (2006) indicated that a comfortable environment keeps the distractions at a minimal and encourage students to engage. They advocated that the comfort in the classroom would "spark creativity" and "help attract the next generation of students and support their learning processes" (Herman Miller, 2004, p. 2).

Hypothesis 11: Computer laptops are a must in the new generation of learning classrooms.

Even though Millennial students noticed a "jump in technology" in the new generation of learning classrooms, they stressed that there were not enough laptops for every student. Millennial students stated, "I do everything on my computer. I'm dependent on the computer. I use it all the time. Technology is a must." As a result, Millennial students found it unfair when one laptop was present per table group.

> It's fair when everyone has their laptops. Not all new generation of learning classrooms have the four laptops for each table. Some of them only have one laptop per table. Everybody at the table wants to use a laptop. One laptop per table is frustrating and discouraging. Someone will be writing notes while the other student types. That's not fair. It gives the student a chance of finishing their notes faster. All the classroom rooms should have four laptops per table. If not, they should take the laptops away.

Frand (2005) emphasized that the Millennial generation was more comfortable "working on a keyboard than writing in a spiral notebook, and happier reading from a computer screen than from paper in hand" (p. 15). Moreover, Oblinger and Oblinger (2005) stated, "The Internet is like oxygen; they can't imagine being able to live without it" (p. 2.9). The Millennials access the Web for their education efforts such as researching specific topics, accessing library materials, and learning from online encyclopedias such as Wikipedia (Jones, 2002). Thus, the students in the study became easily frustrated when there were not an equal number of laptops for each student in the classroom. The Millennial students emphasized that they "lost interest" when there was no laptops available to them in the classroom. Occasionally, the Millennial students were forced to share the laptop only if their peers were considerate to act on this gesture.

Redwood Community College had three types of new generation of learning classrooms, which offered different amounts of technology as shown in Table 5.02.

Table 5.02: New Generation of Learning Classroom Levels

Equipment/Feature	Level I	Level II	Level III
Projector (accessible wirelessly)	X	X	X
DVD	X	X	X
Instructor desk top computer	X	X	X
One wireless laptop per table (8 wireless laptops per studio)		X	
1 wireless laptop per student (32 wireless laptops per studio)			X

Source: Estrella Mountain Community College, 2007

A Level I classroom had a projector, DVD, and an instructor computer. A Level II and III classroom had the same features of a Level I. The difference between a Level II and III was the number of laptops available to students. A Level II classroom had eight wireless laptops. Since there were only eight tables present in the new generation of learning classroom, one laptop was shared among a group of students sitting together at a table. This is shown in Illustration 5.30.

Illustration 5.30: A Level II Classroom

Source: Design Share, 2006

A Level III classroom had 32 laptops. Thus, each student had access to a laptop. Thirty-two was the maximum number of students that could be enrolled in a new generation of learning class. No more than four students could sit at a table. Currently, Redwood Community College no longer had classrooms at a Level I. All new generation of learning classroom had been upgraded to at least a Level II. The reason for the different levels of new generation of classrooms was that the community college believed that not all courses may need as much access to laptops in comparison to other courses.

Hypothesis 12: The Millennial students' desired wireless technology in the new generation of learning classrooms.

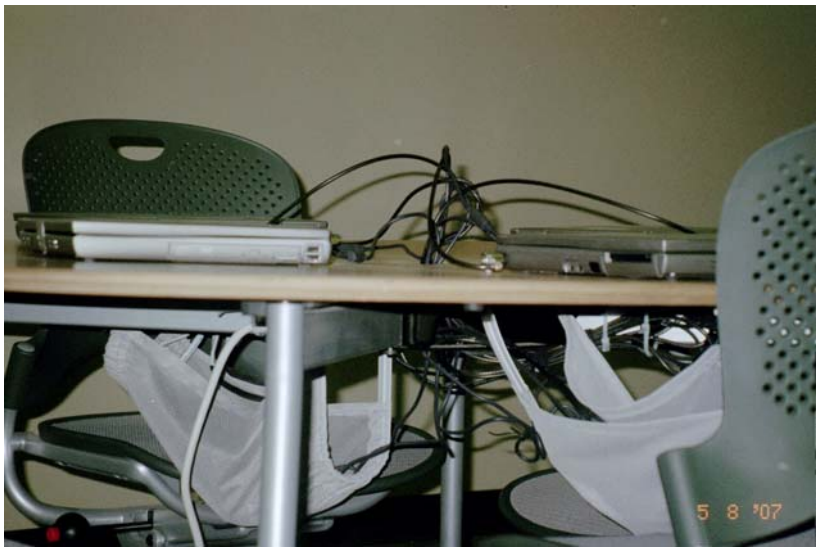
The laptops in the new generation of learning classrooms were bounded on the table by two different types of cords for power and security. Thus, the Millennial

students believed that the cords had impacted the flexibility of the laptops. They described how the cords impacted the appearance of the table.

> There are holes in the middle of the table for security and power cords. It comes through the table to connect to the laptop. I don't like that. The cords bulk on top of the table. It looks messy. You try to stack the laptops on top of each other, but the cords are still bulging everywhere. That makes it difficult.

Illustration 5.31 shows a picture of the cords attached to the laptops.

Illustration 5.31: Laptop Cords



Source: Garcia (2007)

To resolve the situation, customized sacks were created and attached underneath the tables as a solution to hold the cords. However, the Millennial students expressed that the cords were usually pulled out of their sacks and ended up resting on top of the tables. Illustration 5.32 shows a picture of the sacks.

Illustration 5.32: Sacks for Laptop Cords

Source: Garcia (2007)

Oblinger and Oblinger (2006a) stated that the Millennial students' desire amenities in the classroom to be flexible and without physical restrictions.

Hypothesis 13: Instructors who are not proficient in technology do not relate to their students in the new generation of learning classrooms.

The Millennial students expressed that not all instructors incorporated the technology that was available in the classroom into the learning environment. These students believed instructors who were not comfortable with technology would not use it.

> Some of the older professors do not care about the laptops and projector. They teach out of the book and write on the white board. They are not prepared for it (a new generation of learning). They say that if they got taught without them that they are sure that everyone else can. They want us to do the same thing they did when they grew up. A lot has changed. I don't think they can relate to us. The professors should be pressured to learn about technology. They need to keep updating their knowledge.

The different level of proficiency and dependency on technology between generations presented a challenge between older faculty/staff and younger students. Prensky (2001) described older generations as digital immigrants who either do not speak the digital language of the Millennial generation. As a result, higher education has many instructors who "struggle to teach a population that speaks an entirely new language" (Prensky, 2001, p. 2). Oblinger (2003) expressed that faculty members have not fully integrated the new ways students can access and communicate information through technology into their teachings. This has made the Millennial students feel that there were two different time periods present in the classroom.

Oblinger and Oblinger (2005) highlighted that not all faculty and administrators from older generations are digital immigrants. In fact, they, too, may be heavy users of technology. If they were, then they would have similar characteristics to the Millennial generation.

Hypothesis 14: Constant lectures are not suited for the new generation of learning classrooms.

Some Millennial students shared that not all classrooms should be transformed in to a new generational of learning classroom. They believed that not all courses work well in a group setting environment. This is mainly dependent on the instructor's teaching style.

> If the instructor is going to have students research and work together, then a new generation of learning classrooms are great for that type of learning. If you are taking notes all day from a lecture, then there is no need for a new generation of learning classroom.

In this circumstance, instructors were influenced by the lecture method as the primary tool for teaching since it was the most convenient technique to deal with students. Thus, the public image of higher education in the classroom has been faculty lecturing while students listen and take notes. Students who learn through the traditional teaching approaches have found themselves an ineffective learning environment (Long & Ehrmann, 2005). Faculty, who continue to implement the same teaching style regardless of the environment, expressed that their method of instruction was not influenced by the classroom environment. They stated, "My style is more dominate than the environment. It is constant in any setting. I don't change the way I do things." Furthermore, the Millennial students expressed that "you can have the most beautiful classroom" and if the instructor did not take advantage of the amenities, then "they would not have a good class."

Valenti (2002) stated that students have moved beyond the lecture concept. Instead, they have expected a "plug-and-play experience" and participation and experimentation in their learning (Duderstadt, 1997, p. 80). Frand (2000) suggested that if educators continued to teach in the same manner, then little value would be added to the classroom curriculum.

Hypothesis 15: Faculty become concerned with the safety of technology in the new generation of learning classrooms.

The faculty participants expressed that teaching in a technology inundated classroom had increased their concern on security issues with technology. Since the new generation of learning classrooms provided laptops for students, they felt accountable on increasing their vigilance to prevent computer theft.

> We need to work on issues with security. I really dislike as a faculty member that first thing I have to do when I walk into a room is count the number of laptops I have available. It's also the last thing I have to do before I leave. I do my count and lock the door. The other night I left during the evening. My brain is already home for the weekend. I walk all the way out to the parking lot, and I realized I forgot to lock the door. I go back and lock the room. I would have been the responsible party if I had not locked it and something was stolen.

Instructors desired to seek alternatives to improve the security of technology. They recommended, "An alarm system should go off, so the instructor doesn't have to sense that they are responsible. Then, the faculty member would't have to play policeman." An alternative solution to increasing the safety of the laptops would relieve faculty from feeling responsible for "thousands of dollars worth of equipment."

Hypothesis 16: Technology distractions can exist among students in the new generation of learning classrooms.

The Millennial students and faculty have described the new generation of learning classrooms as a technology inundated classroom. Even though the number of laptops available for students varies in the new generation of learning classroom levels, instructors have become concerned on the distractions technology brings during class time.

> Many students are on the laptop during class time even though it has nothing to do with the class. Technology has made it easier for students to email, surf the Web, and check their Myspace account in class. It gives them a way out if they don't want to pay attention to what I'm doing on the board. That is a distraction for them. I believe if the laptops are there and students use it. I'll crack down when it interferes with other students learning. You are always going to get students who do something they're not supposed to do.

Millennial students admitted that the laptops could be a distraction too since they were able to multitask numerous programs on the computer. Skiba and Barton (2006) stated that the Millennials live in a mobile world which has facilitated their multitasking nature. They are accustomed to "jumping from one computer-based activity to another," (Tapscott, 1998, p. 108). This population discussed how they multitask in the new generation of learning classroom.

> I would say that half of the class is multitasking in any given point of time. Some of it is good and bad. Some are actually following along with the instructor. Some are on Myspace. I feel bad anytime I multitask in the classroom. If my teacher catches me, he is going to think that I'm goofing off and not paying attention. If I were in his place, I would think that too. Depending on the instructor, I'll search the Web and write a paper at the same time. I'll have an average of 15 windows open. I can understand the instructor when I multitask. I can rephrase what they say by a word or two. I get the gist of it. I can take notes while I'm chatting. I'm not going to lie. You can slack off with the computer right in front of you.

Faculty also shared that the accessibility of technology in the classroom has become a distraction for the Millennial students. They found that they would need to discourage students from performing unrelated tasks such as social networking online.

> A student logging on the Internet and doing things unrelated to class is annoying. It's bad manners. It's hard for instructors to completely stop this behavior. When I walk around, I can see students checking their email or Myspace account during class time. If they miss out on something, then they miss out. If the student asks me, I'll say 'I just covered that. Ask your neighbors.'" Luckily their neighbors are more understanding than I am. Most of the time, I'll just place my hand on the student's arm and deliver the message that I know what you are doing and stop it. You don't have to say anything. It's like your mother or father's withering glance. Kids are very sophisticated. I always address surfing the Web during class time into my syllabus. We talk about this can bring disrespect between students and instructor. That kind of activity really needs to be curtailed because their surfing interferes with their ability to learn and my ability to teach. I know it happens more than I'm aware of. It's probably a generational thing.

The Millennial generation has been linked to having skill to simultaneously email, Instant Message, surf the Web, and talk on their cell phone. Just as these students take advantage of the delay moments between activities to accomplish other tasks, other Millennials have also thrived on instant gratification (Oblinger & Oblinger, 2005).

Hypothesis 17: Social distractions can increase among students in the new generation of learning classrooms.

Although the Millennial population shared that the new generation of learning classrooms had increased socialization among students, they believed that increasing student interaction could be a distraction.

> The down side of the new generation of learning classroom is it's more social when you are in groups. There is too much talking among the students. It is hard to pay attention and listen. You are interrupted by students. You have to hear over all the chatting. I'll be frustrated. The instructor has to constantly tell us to be quiet because there are people trying to learn. Students need to listen, take notes, and tell their peers to be quiet. It's challenging.

An additional distraction in this learning environment was the disadvantage of group work. The Millennial students expressed that the group assignments could be unequally balanced among the group. They encountered that some of their peers would not contribute to the assignments since they were more focused on surfing the Web or chatting with friends. They stated, "Most of the time students are on Myspace rather than doing the assignment or working together." To prevent frustration, the Millennial students who were impacted by this situation were more likely to prefer to work alone.

Hypothesis 18: An extreme classroom climate can impact the learning environment.

Extreme climate conditions could effect the comfort and performance of classroom participants. Millennial students and faculty shared that the extreme classroom climate had become a distraction in the learning environment. Students who are impacted by the hot or cold climate in the new generation of learning classrooms found it a challenge to concentrate and participate in course discussions and assignments.

> We have a lot of problems with the cooling system. The temperature of the room varies. Sometimes it is one extreme to the other. It seems hot and stuffy, or it's freezing. You don't want to bring a sweater because it is starting to get hot outside. It makes it harder to concentrate and learn in the classroom. Last semester during our final we changed rooms. It was unbearable freezing cold during the final. Nobody could concentrate. The teacher moved us to another room where we could finish our final. Today, when I had class, it was warm. I haven't found a happy medium in those classrooms. It's not comfortable.

Faculty discussed that the extreme temperature could be a disruption in the classroom. They believed students were less inclined to learn and socialize in the learning environment since they would be more focused on their desire to leave the classroom. They stated, "It's like the white elephant in the room. Everybody notices it. It impacts everyone behavior. It's an unwelcome guest. By having a nice climate, students would be more inclined to learn, better social networking." The faculty participants recommended to their students that they bring sweaters to class at all times.

Hypothesis 19: The Millennial students expect a Collaborative-Regulated Learning environment in the new generation of learning classrooms.

The Millennial students expected that the instructor would have a teaching style that would include fewer lectures and encourage students to have ownership in their learning. They have had a preference for group based activities in (Oblinger, 2003;

Jonas-Dwyer & Pospisil, 2004). As the instructor considered the Millennial students' characteristics, he or she would need to identify an environment that would support their inductive learning. Therefore, the instructor would pursue the role as a facilitator and mentor rather than an authoritative figure. The instructor would encourage students to discover, construct, and understand knowledge with their groups. This will involve that the Millennial students *plan, monitor, evaluate,* and *reflect* collectively for class assignments. This is known as Collaborative-Regulated Learning.

IMPLICATIONS

Today's students have the ability to accomplish multiple tasks and absorb stimuli simultaneously. Classroom spaces need to "match the habits and study arrangements of a multitasking student body by being as adaptable and flexible as the students who occupy them." (Herman Miller, 2004, p. 2). Based upon the results of this study and utilizing literature findings, community colleges should consider the following characteristics when creating new generation of learning classrooms:

- **Visionary Leadership** - "College leaders must set the tone during design discussions so that teaching and learning considerations remain primary in the planning states that involve budget, space, furniture, infrastructure, and technology. Creating spaces that by their appearance, color, texture, equipment, and arrangement make students want to linger and learn" (Oblinger, 2006b, p. 46).
- **Research Your Students and Faculty** - Colleges must research their student and faculty population to seek their input on the types of amenities they need in the classroom. This can be implemented through meetings, focus groups, and surveys.

- **Technology** – The Millennial students emphasized that "technology is a must" in the new generation of learning classrooms. Since the "Internet is like oxygen" and "they can't imagine being able to live without it," the accessibility of laptops is critical to their learning environment (Oblinger & Oblinger, 2005, p. 2.9). This would allow the Millennial students to type notes, research online and complete course work assignments online.
- **Professional Development for Faculty** - Upon entering a new generation of learning classroom, students have the expectation that there will be more student interaction and less lecture based teaching. However, they expressed that there are faculty who continue to only lecture in these new classrooms. Thus, the Millennial students may be resistant to an instructor who does not address the various types of learning styles and use the available amenities as part of their teaching style.
- **Student Learning Environment** - The Millennial students seek an informal learning environment that fosters collaboration, community (socialization), active learning, multiple learning resources, discovery, and student engagement (Brown, 2005; Carmean & Haefiner, 2002). They do not favor an environment that discourages interaction among students, supports a sole lecture environment, promotes instructors as authoritative figures, and lacks technology.
- **Flexible Environment** – A flexible environment is essential to the new generation of learning classrooms. The classroom layout needs to provide spaces for individual, one-to one, small group, and large group activities and areas for laptop or other portable technologies. This would allow different types of activities to occur simultaneously. Tables and chairs that are lightweight, ergonomic, and can be easily

moved through out the classroom would encourage a flexible environment. Oblinger and Oblinger (2006a) stated:

> The key is to provide physical space that supports multidisciplinary, team-taught, highly interactive learning unbounded by constraints within a social setting that engages students and faculty and enables rich learning experiences. This space will be far different from the traditional classroom…To provide the proper use for teaching and learning, we need more than a single place…These spaces will be flexible and functional and pay greater attention to aesthetics than traditional 20th century classrooms" (p. 3.9).

- **Ample Amount of Writing Space** - Colleges are encouraged to provide an ample amount of writing space for Millennial students and faculty. This is to encourage students to have designated areas to brainstorm and discuss about topics as they write notes for their group to see. Furthermore, the additional writing space does not make the instructor limited on how much can be written on the board.
- **Security** - Colleges need to seek solutions to address the security issues that arise with technology in the classrooms. The faculty participants became concerned when they feel accountable for the safety of the laptops that are used by students.

RECOMMENDATIONS FOR FURTHER RESEARCH

Prior to this study there was limited information on the experience of Millennial students and faculty in the new generation of learning classrooms. It is hoped that the findings of this study would provide a base for the initiation of further studies. The following are recommendations for further investigation suggested by this study:

1. Further research should be done on comparing student engagement between the new generation of learning classrooms and traditional classrooms.

2. A replication of the present study utilizing younger Millennial students in the secondary level to prepare for the classrooms to be expected in postsecondary education.
3. A replication of the present study utilizing students who have experience in a new generation of learning classrooms at a four-year university.
4. A replication of the present study utilizing students who are identified as Generation X and Baby Boomers.

SUMMARY

The educational spaces on college campuses have been the traditional lecture theatre setting which favors an old generation of learning (Jamieson, Dane, & Lippman, 2005). Usually, instructors lecture in front of the classroom while the students sit quietly and take notes. Frequently, Millennial students will need spaces that facilitate group interaction, encourage use of technology, and provide network connections (Brown & Lippincott, 2003). Those spaces must match the habits and study arrangement of the Millennial generation. Herman Miller (2004) recommended "a mixture of relaxed discussion and study areas, workspaces that expand or contract depending on need, and private or group spaces with computers and other equipment," which can coexist in the same space (p. 2).

In summary, it is the hope of the investigator that the implications emerging from this case study contribute to the understanding of the Millennial students' and faculty perception on the new generation of learning classrooms. The faculty members described the new generation of learning classroom as the following: relaxed, informal, flexible,

soothing, warming, friendly, and welcoming. Moreover, the Millennials expressed their opinion by the following statement:

> These classrooms are the best inventions. To go from how classrooms were before is really depressing. The classrooms are appropriate for the new age of teaching and technology. It is very advanced. These classrooms are right on track on what we need. There is the right amount of technology in the classroom and a nice mix of the traditional teaching and keeping up with the times. My learning environment is more conducive to the new generation of learning classrooms than the traditional classroom. I'm a big cheerleader for the new generation of learning classrooms. It's nice to have this investment in the classroom.

Oblinger and Oblinger (2006a) emphasized that as younger generations enroll in college the classroom will continue to transform. She highlighted:

> Our understanding of how students learn will continue to evolve, and the design of space will, at times, struggle to keep up. At other times, creative space will lead and challenge its users to break free of traditional restraints. We may never find the ideal learning space; the adventure is in trying to get there. (p. 3.10)

APPENDICES

APPENDIX A - GENERATION COMPARISON

Generation Characteristics	Baby Boomers	Generation Xers	Millennials
Birth Years	1943 -1960	1961-1981	1982-2002
Ages	46- to 63-years-old	25- to 45-years-old	24- to 4-years old
Population	78 million	48 million	72 million
Outlook	Optimistic	Skeptical	Hopeful
Work Ethic	Driven	Balanced	Determined
View of Authority	Love/Hate	Unimpressed	Polite
Leadership	Consensus	Competence	Pulling Together
Impressionable Events	▪ McCarthyism ▪ Civil Rights Act ▪ Rosa Parks refuses to move to the back of the bus ▪ President John Kennedy, Martin Luther King, and Robert F. Kennedy assassinated ▪ Woodstock	▪ Watergate scandal ▪ Tandy and Apple market PCs ▪ Challenger disaster ▪ Mass suicide in Jonestown ▪ Exxon Valdez oil tanker spill ▪ Fall of Berlin Wall ▪ Operation Desert Storm ▪ Rodney King beating ▪ John Lennon shot and killed	▪ Violence: Oklahoma City bombing, schoolyard shootings ▪ Technology ▪ Busy, overplanned lives ▪ Clinton/Lewinsky ▪ Columbine High School massacre
Cultural Memorabilia	▪ The Ed Sullivan Show ▪ Poodle skirts ▪ TV dinners ▪ Hula Hoops ▪ Slinkies	▪ The Brady Bunch ▪ Pet Rocks ▪ The Simpsons ▪ ET ▪ Cabbage Patch Dolls	▪ Barney ▪ Beanie Babies ▪ The X Games ▪ Teenage Mutant Ninja Turtles ▪ Virtual pets

Generation Characteristics	Baby Boomers	Generation Xers	Millennials
Messages that Motivate Them	▪ "You're important to our success." ▪ "You're valued here." ▪ "You're contribution is unique and important." ▪ "We need you." ▪ "I approve of you." ▪ "You're worthy."	▪ "Do it your way." ▪ "We've got the newest hardware and software." ▪ There aren't a lot of rules here." ▪ "We're not very corporate."	▪ "You'll be working with other bright, creative people." ▪ "You and your coworkers can help turn this around." ▪ "You can be a hero here."
What other Generations Think About Them	Gen Xers say… ▪ "They're self-righteous." ▪ "They're workaholics." ▪ "They're too political." Millennials say… ▪ They're cool." ▪ They work too much."	Boomers say… ▪ "They're slackers." ▪ "They are rude and lack social skills." ▪ They're always doing things their own way, instead of the proscribed way." Millennials say… ▪ "Cheer up!"	Boomers say… ▪ "They need more discipline from their parents." ▪ "Can they do my web page for me?" ▪ "They can set the time on the VCR!" Gen Xers say… ▪ "Here we go again…another self-absorbed generation of spoiled brats." ▪ "What do you mean, 'What's an album?"

Source: Strauss & Howe, 1991; U. S. Census Bureau, 2000; Zemke, Raines, & Filipczak, B., 2000;

APPENDIX B – A COMPARISON ON A NEW GENERATION OF LEARNING CLASSROOMS VS. TRADITIONAL CLASSROOMS BY MILLENNIAL STUDENTS AND FACULTY

Millennial Students' Perceptions on the New Generation of Learning Classrooms vs. Traditional Classrooms

Topic	A New Generation of Learning Classrooms	Traditional Classrooms
Classroom Expectation	"When students walk into the new generation of learning classrooms they will assume that they will do group work. The appearance of the classroom gives you that expectation. We are not there to just watch the instructor. We are there to work together."	"The traditional classroom is very boring. The tables are lined up beside each other. There is one person sitting on your left and right. I feel constrained. You are looking one way. We are all seated to watch the instructor teach. It doesn't feel good. You can't talk to your neighbor. You don't feel comfortable speaking up in class."
Student Interaction	"The classroom is set up makes you more aware of your fellow students instead of the instructor. When you are in group setting environment you have to look around. If the person next to me has a question or a problem, I can't just ignore it. I'm more prone to turn to them, tell them how to do it, and tell them what's going on in the classroom."	"A lot of times when I'm in a traditional classroom I don't care who sits behind me. I don't care who's got what going on. As long as I understand the material, and I'm listening to the instructor then that's fine."
Group Work	"The tables are flexible, light, and easy to move. The environment sends a message to us saying it's okay to work together."	"You can still do group assignments in a traditional classroom, but everyone complains. Students would have to take it upon themselves to get together for group work. You have to get up, move your stuff, move the tables, and put them together. It's inconvenient. It's difficult to move around the room."
Computers	"Now we can see each other because of the laptops."	"The desktops in traditional classrooms made it difficult to see your classmates since it was always in the way. It was hard to have interaction."

Wall Colors	"The colors on the wall give the classroom a relaxed feeling. It is nice. The colors are earthy tones. The walls are red, green, yellow, and blue. You have that one accent wall. It's pretty. It is easy on the eyes. You go in there and you are like 'ah.' The colors make the classroom open and inviting."	"Otherwise it would be the same boring traditional classroom with a gray, white, and bleak hospital appearance. It is not inviting. You will not want to be in the room for long."
Chairs	"The chairs have wheels which makes it easy to move them and glide. The chairs are supportive for your back. They swivel and turn. Everybody fights for the one with the arm rest. They are really nice chairs. They invest in chairs."	"If you have the other ones in the traditional classroom you are always sitting straight. It makes you tired. You want to leave already because they are not comfortable."

Faculty's Perception on the New Generation of Learning Classrooms vs. Traditional Classrooms

Topic	A New Generation of Learning Classrooms	Traditional Classrooms
Technology	"All the technology that I want to use is in that classroom (new generation of learning classroom)."	"In a traditional classroom, I would have to bring a laptop with the software programs on it for the course. There are no computers for the students to use."
Writing Tool for Board	"I like the whiteboards. It's a lot easier than chalk. Now, we use markers."	"I spent one summer semester in a traditional classroom with chalk. It was awful on my hands. The constant writing with the chalk really dried out my hands. I started to have my hands crack by the end of the semester. It seems like a little thing. But when you are writing everyday, it gets painful."
Projection Screen	"I no longer have to worry about the problematic screen in the traditional classroom. The big white boards had taken the place of the screen. I was excited. I didn't have to pull it down and up any longer. PowerPoint presentations look crisp, and it has a nice clean look (on the white board). It's great for students to see their work in that professional edge. The screen is no longer a concern in the classroom."	"I use to have problems pulling the screen down. You either couldn't find the strings to pull it down or the string would get hooked on something. It would be too high up. A couple of times I had to stand on a chair to get the string to pull it down. It wouldn't stay down. I use to sit on the floor in the traditional classroom to hold the screen down for a presentation. Sometimes it flapped because of the air conditioning."
Lecturing	"Teaching in a new generation of learning classroom reminds me to take a break from lecturing. It reminds me that they have their own voices and thoughts."	"The traditional classroom encourages lecture since the instructor is in one location of the room. I have to fight to not lecture."
Instructor Role	"In the new generation of learning classroom, the teacher is not a traditional role. You become a	"If the students are aligned like soldiers in a row, then, they will look at the instructor differently,

	guide rather the person who does all the lectures and who has all the information."	especially as an authoritative person."
Classroom Furniture	"There is more flexibility to learning in this environment in comparison to a traditional classroom. They can create their own area to work. This will involve moving furniture such as the chairs, tables, and mobile white boards. They get up and move around the classroom. There is a lot of space for learning."	"The traditional classroom is very uncomfortable, and the chairs are heavy too."
Interacting with Students	"The set up of the tables in the new generation of learning classroom is still easy for me to navigate. The classroom layout allows me to access any student right away. I do like the openness of it."	"When students are in rows, the most I do is walk along the front and in the middle center. It's not easy to personally interact with them. The rows are tight. I'm not going to walk between desks. I'm not going to past two students to get to the third student and look over their shoulder and see what they are working with. We are crowded."
Wall Colors	"The subtleness of the colors in the classroom and carpeting adds to the environment. It's soothing, warming, friendly, welcoming, and not too institutional. The classroom appears modern and up-to-date. The colors give you a sense that the learner has been taken under consideration."	"The colors of the classrooms are boring white like a hospital room. There is nothing eye popping of colorful in the whole room."
Student Engagement	"I get much more student interaction in a new generation of learning classroom. There is always discussion."	"I struggled to get my students to participate, respond, react, and ask questions in a traditional classroom. When instruction was done students would leave."

APPENDIX C – ISSUE STATEMENTS

Issue Statements

The following issue statements were asked of each group that would reflect understanding on their perspective of the new generation of learning classrooms.

Issue Statements

- Tell me about the new generation of learning classrooms.
- Tell me about learning in a new generation of learning classroom
- Tell me about students in the new generation of learning classroom
- Tell me about instructors in the new generation of learning classroom
- Tell me about course work in the new generation of learning classroom
- Tell me about team work in the new generation of learning classroom
- Tell me about technology in the new generation of learning classroom

APPENDIX D – WARM-UP EXERCISE

Warm-Up Exercise (Student and Faculty Focus Groups)

In a few minutes, I am going to ask you to tell me about your experience with the new generation of learning classroom s.

- To begin, try to get as comfortable as you can.
- Put your thoughts of the day aside.
- Look around you as you sit on your chair in the new generation of learning classroom. Take in the sights and sounds that are associated with being in this class setting. (long pause)
- Allow yourself to become aware of your environment with all of your senses
- Think about the 18-to 24 year-old students you teach in the new generation of learning classroom.
- Consider their behaviors in this learning environment
- Think about your teaching style
- Think about the objects you see here
- Focus on what it feels like to be totally absorbed in the new generation of learning classroom (long pause)
- Reflect on all the thoughts you had concerning the class environment
- Now, get the stack of note cards and marker and tell me about new generation of learning classroom s
- Write one thought per card
- Don't sensor yourself
- Write one thought per card until you have exhausted your ideas or until I ask everyone to stop
- Produce as many cards as you wish
- Do not censor your thoughts. All thoughts are okay.
- Don't analyze; just write

APPENDIX E – CONSENT FORM

CONSENT FORM

IRB APPROVED ON: (ORSC USE ONLY) *EXPIRES ON:_____*

IRB PROTOCOL _____

Title: Millennial Students' and Faculty's Perceptions of a New Generation of Learing Classrooms

Conducted by: Linda García (llgarcia3@hotmail.com)
Of University of Texas at Austin, College of Education

You are being asked to participate in a research study. This form provides you with information about the study. The person in charge of this research will also describe this study to you and answer all of your questions. Please read the information below and ask any questions you might have before deciding whether or not to take part. Your participation is entirely voluntary. You can refuse to participate without penalty or loss of benefits to which you are otherwise entitled. You can stop your participation at any time and your refusal will not impact current for future relationships with UT Austin.

The purpose of the study is to explore the Millennial students' and faculty's perceptions of a new generation of learning classrooms.

If you agree to be in this study, we will ask you to do the following things:

- Rate scenarios that reflect their learning style preference.
- Rate scenarios that reflect their assumption of the opposite party, whether it is a faculty person or student

Total estimated time to participate in a study is 2 hours for a focus group and 30 minutes for an interview. You will only participate in either a focus group or interview.

Risks and Benefits in being in the study

- There are no risks involved in this study.
- There are no benefits.

Compensation:

- No compensation is provided for participation in this study.

Confidentiality and Privacy Protections:

Since the focus groups and interviews will be recorded, participants will be told the following:

(a) interviews or sessions will be audio taped;
(b) tapes will be coded so that no personally identifying information is visible on them;
(c) tapes will be kept in a secure place (e.g., a locked file cabinet in the investigator's office);
(d) tapes will be heard or viewed only for research purposes by the investigator and his or her associates;
(e) *tapes will be erased after they are transcribed or coded*.

Authorized persons from The University of Texas at Austin, members of the Institutional Review Board, and (study sponsors, if any) have the legal right to review your research records and will protect the **confidentiality** of those records to the extent permitted by law. Throughout the study, the investigator s will notify you of new information that may become available and that might

affect your decision to remain in the study.

Contacts and Questions:
If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page. If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Lisa Leiden, Ph.D., Chair of The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 471-8871 or email: orsc@uts.cc.utexas.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information and have sufficient information to make a decision about participating in this study. I consent to participate in the study.

Signature:_____ Date: _____

_____ Date: _____
Signature of Person Obtaining Consent

Signature of Investigator:_____ Date: _____

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